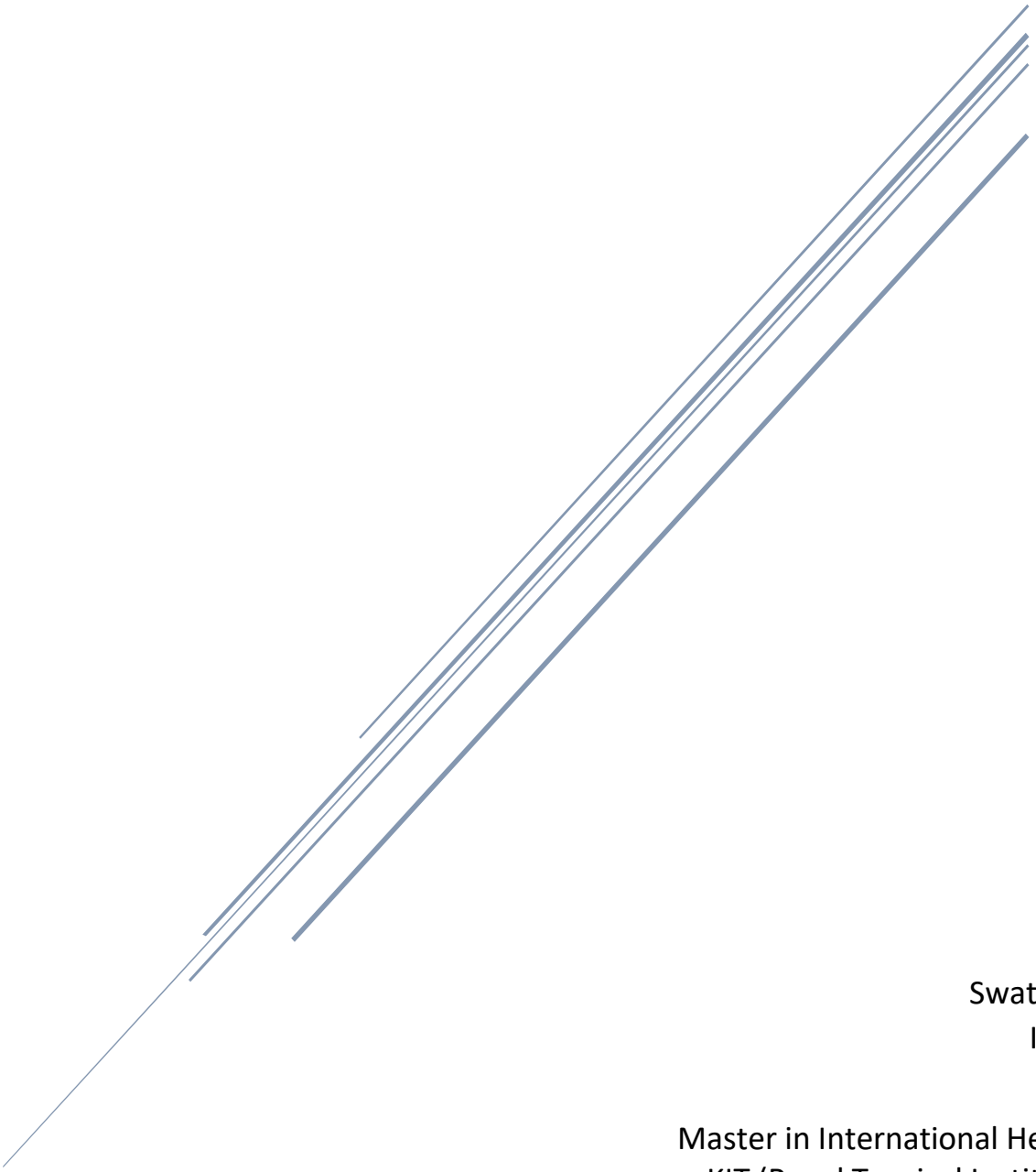
Factors influencing depression and anxiety disorders among women of reproductive age in India – A review of literature



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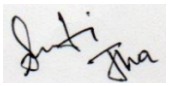
Factors influencing depression and anxiety disorders among women of reproductive age in India – A review of literature

A thesis submitted in partial fulfilment of the requirement for the degree of
Master of Science in International Health

by

Swati Jha

Declaration:
Where other people's work has been used (from either a printed or virtual source or any other source), this has been carefully acknowledged and referenced in accordance with academic requirements.
The thesis "Factors influencing depression and anxiety disorders among women of reproductive age in India – A review of the literature" is my own work.

Signature: 

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Abstract

Introduction - Mental health is a significant public health problem, and depression and anxiety among mental disorders contribute to the maximum burden in India among women of reproductive age. The main objective of this thesis aims to identify the factors affecting depression and anxiety in women of reproductive age in India.

Methodology - The author systematically searched the literature using the conceptual framework published by the "office on women's health" in the United States of America. Databases used were PubMed, PsycINFO, Elsevier, and Vrije Universiteit Amsterdam library. In addition, the author retrieved relevant literature on India in English, published in or after 2010.

Findings - In India, the prevalence of depression and anxiety among women of reproductive age are interlinked to various factors such as biological factors, gender discrimination, stigma, poverty, violence and abuse. This problem is further aggravated by contributing factors such as low mental health literacy, high out-of-pocket expenditure for treatment, and lack of availability of mental health workers and services. On the other hand, education, financial independence, and peer and familial support were found to impact women's mental well-being positively.

Discussion - Vulnerable phases in women's life interlinked with environmental factors contribute highly to the risk of common mental disorders in women of reproductive age. There are health system-based shortages and issues which increase the treatment gap. Policymakers must address poverty and gender equity and focus on stigma at all levels. Intersectoral collaboration and community-level interventions are required for mental health screening, awareness and promotion across India.

Keywords - "Depression", "Anxiety", "Women of reproductive age", "Mental disorders", "India"

Word count - 12309

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List Of Acronyms

ABY - Ayushman Bharat Yojana

CMDs - Common Mental Disorders

DALYs - Disability Adjusted Life Years

DMHP - District Mental Health Program

DV - Domestic Violence

GDP - Gross Domestic Product

IEC - Information, Education and Communication

IPV - Intimate Partner Violence

LMICs - Low Middle-Income Countries

MHA - Mental Healthcare Act

NMHP - National Mental Health Programme

NMHS - National Mental Health Survey

PD - Perinatal Depression

PMDD - Premenstrual dysphoric disorder

PMS - Pre-Menstrual Syndrome

PPD - Postpartum depression

PTSD - Post Traumatic Stress Disorder

PWMI - People With Mental Illness

SES - Socio-Economic Status

SV - Sexual Violence

WHO - World Health Organization

WRA - Women of Reproductive Age

Glossary Of Terms

"Anxiety disorders - Anxiety and fear-related disorders are characterised by excessive fear and anxiety and related behavioural disturbances, with symptoms that are severe enough to result in significant distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning." (1)

"**Common mental disorders** (CMDs) refer to two main diagnostic categories: depressive and anxiety disorders. These disorders are highly prevalent in the population (hence why they are considered 'common') and impact the mood or feelings of affected persons; symptoms range in terms of their severity (from mild to severe) and duration (from months to years). These disorders are diagnosable health conditions and are distinct from feelings of sadness, stress, or fear that anyone can experience from time to time in their lives." (2)

"**Depressive disorders** are characterised by depressive mood (e.g., sad, irritable, empty) or loss of pleasure accompanied by other cognitive, behavioural, or neurovegetative symptoms that significantly affect the individual's ability to function. Depression can be long-lasting or recurrent, substantially impairing an individual's ability to function at work or school or cope with daily life. At its most severe, depression can lead to suicide." (1,2)

"**Disability-adjusted life years (DALYs)** - One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of the years of life lost due to premature mortality (YLLs) and the years lived with a disability (YLDs) due to prevalent cases of the disease or health condition in a population." (3)

"**Gross domestic product (GDP)** is the average per capita market value of the sum of gross values added of all resident institutional units engaged in production, for a given national economy, at a given period. Usually, a year, expressed in international dollars using purchasing power parity rates." (3)

"Pre-Menstrual Syndrome (PMS) is characterised by cyclic emotional, physical, or behavioural symptoms such as mood alterations, psychological changes, fluid retention, neurologic changes, gastrointestinal changes, pelvic heaviness, or dermatological changes affecting women in the luteal phase of the menstrual cycle that interfere with an individual's lifestyle." (1)

"Premenstrual dysphoric disorder (PMDD) - A pattern of mood symptoms (depressed mood, irritability), somatic symptoms (lethargy, joint pain, overeating), or cognitive symptoms (concentration difficulties, forgetfulness) that begin several days before the onset of menses, start to improve within a few days after the onset of menses and then become minimal or absent within approximately 1 week following the onset of menses."(1)

"**Postpartum depression (PPD)** - A syndrome associated with pregnancy or the puerperium (commencing within about six weeks after delivery) that involves significant mental and behavioural features, most commonly depressive symptoms. The syndrome does not include delusions, hallucinations, or other psychotic symptoms."(1)

"**Post-traumatic stress disorder (PTSD)** may develop following exposure to an extremely threatening or horrific event or series of events. It is characterised by all of the following: 1) re-experiencing the traumatic event or events in the present in the form of vivid intrusive memories, flashbacks, or nightmares. 2) avoidance of thoughts and memories of the event or events, or avoidance of activities, situations, or people reminiscent of the event(s); and 3) persistent perceptions of heightened current threat." (1)

"**Women of reproductive age (WRA)** is a group of women in age between 15 and 49 years**.**"(3)

Introduction

As a medical doctor, I have worked in diverse fields, including Obstetrics, Palliative care and Psychiatry. Within psychiatry, I have worked in settings including psychiatric rehabilitation centres, deaddiction centres and emergency care for over five years in India. I have engaged with doctors, nurses, psychologists, and community workers in the mental health field.

I have interacted with people with mental health problems during this period and tried to understand the factors affecting them from a medical perspective. However, mainly through my experiences working with women patients, I noticed that beyond medical science, there are other factors which affect them.

Though the burden of mental health disorders has always been there, I believe it has recently gained more momentum during the COVID-19 pandemic. Also, I think governments and organisations have started to focus more on mental health services and the mental well-being of the general public.

When I joined the Master's programme, I wanted to explore the above-stated factors with a much more comprehensive view. Learning the social determinants of health through the curriculum gave me a perspective to examine health problems from various spheres. This led me to choose the thesis topic of "identifying the factors affecting depression and anxiety in women of reproductive age in India".

I believe this study will provide a holistic view of the necessary policy changes and recommendations that would be women-centric and beneficial for their mental well-being. Also, I hope this study will serve as a call to reflect upon women-focused mental health programs and provide a shift in thought towards women's mental health in India.

1 Background

This chapter describes a brief overview of mental health in the global context and the background of India from a geographic, demographic, economic, and health system standpoint.

1.1 Global Context

According to "World Health Organisation (WHO)", "Mental health is a state of mental well-being that enables people to cope with the stresses of life, realise their abilities, learn well and work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective skills to make decisions, build relationships and shape our world." (4)

Globally, in 2019 an estimated 13% of the world population (970 million cases) were affected by mental disorders. There was more prevalence of mental disorders in women when compared to males (approximately 52% and 48%, respectively). Mental health conditions affect all areas of life, including education, relationships, family and finally, the contribution of people to the community. Globally, the overall burden of these mental health conditions is estimated to be US$1 trillion annually. (5,6)

The most recent WHO estimates show that about 80% of people experiencing mental health conditions have no or poor access to quality and affordable health care. Additionally, mental disorders were one of the top ten major causes of "Disability Adjusted Life Years (DALYs)" in 2019. There is an increase in global suicide mortality (800,000 per year), which is about 2% of total deaths due to all mortalities, the eighteenth leading cause of death in 2019. (7)

Of the global mental health burden, 70% occurs in Low Middle-Income Countries (LMICs), and the treatment gap is at 90%. Even with increased advocacy of mental well-being and initiatives undertaken by WHO, the global median expenditure for mental health care stands at less than 2% of a country's total health care expenditure per capita. (7,8) The poorly resourced health care services and mental health education in the LMICs need more focus to reduce this gap and ensure better mental health well-being. (9)
The global DALYs (Figure 1) for most age groups show that depressive and anxiety disorders cause the most significant burden. Compared to males, regardless of age, females have more disease burden. (10)

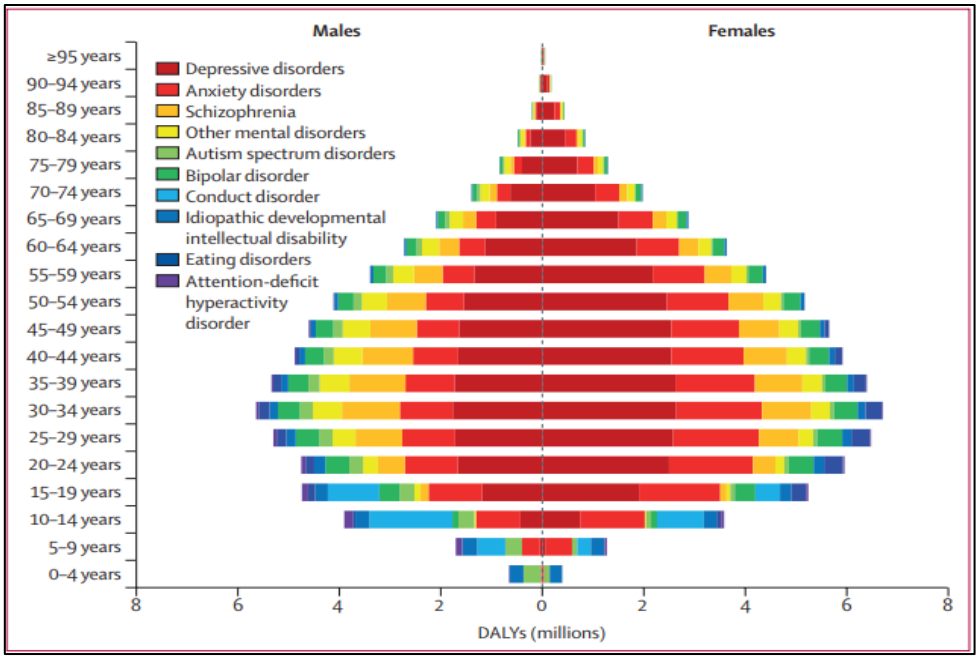


Figure 1: Global DALYs by mental disorder, sex, and age, 2019 (10)

1.1.1 Common Mental Health Disorders

WHO defines "Common Mental Health Disorders (CMDs) as depressive and anxiety disorders" due to more prevalence of these disorders worldwide (69.2% of any mental health disorder). They impact a person with stress and sadness, and these symptoms can range from mild to high severity. (2) Since the inception of the COVID-19 pandemic (between 2020 to 2021), the global prevalence of CMDs has grown by more than one-fourth. In addition, people's mental well-being was affected due to the downstream impacts such as economic recession, lockdowns for extended periods, panic and confusion created by the news and governmental agencies regarding rules and regulations, and loss of income. (11,12)

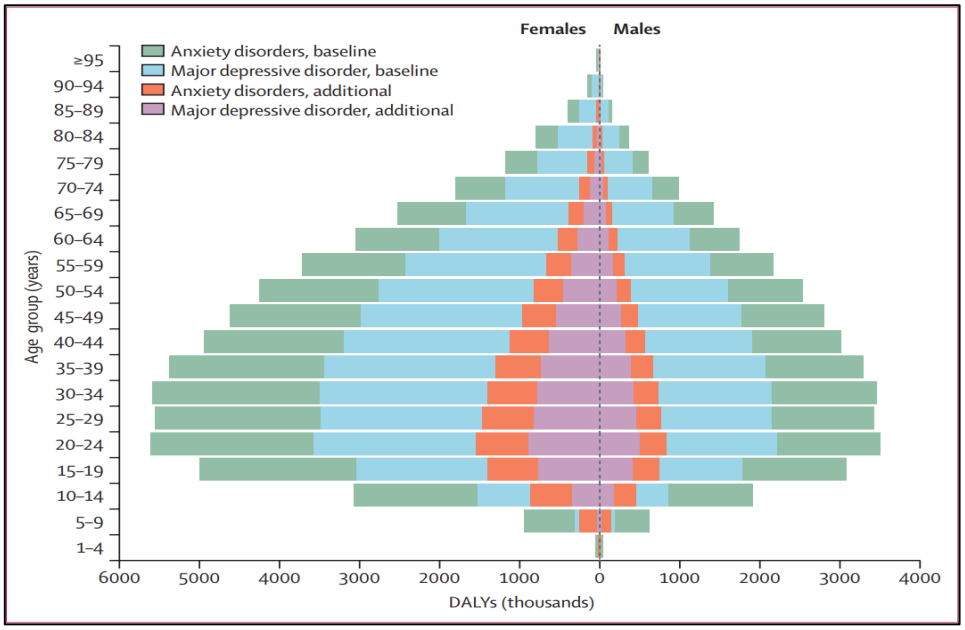


Figure 2: Global DALYs by mental disorder, sex, and age, 2020 (13)

Figure 2 depicts the additional burden increase (baseline refers to pre-pandemic, 'additional' refers to during the pandemic) on women due to depression and anxiety. Social and economic consequences such as additional responsibility for household activities due to illnesses within the family or care of children due to school shutdowns and lower financial and employment security were the primary factors associated with this increased burden. (13)

1.2 Indian Context

1.2.1 Geography

India is the biggest country in Southern Asia, with a highly diverse geography. India's land area is 3,287,259 km². India has a coastline of 7,000 km. There are eight neighbouring countries of India, namely Bangladesh, Bhutan, Myanmar, China, Nepal, Pakistan, and Sri Lanka. It is the seventh-largest country (area) in the world. India comprises twenty-eight states and eight union territories (Figure 3), further divided into districts. (14)

Figure 3: India map with states and union territories (15)

1.2.2 Demography

India's population is approximately 1.3 billion, with a population split between urban and rural regions being 35% to 65%, respectively. The population density per km² is 419. The male-to-female ratio stands at 940 females per one thousand males. The average annual population growth rate is 1.64 per cent. The life expectancy for males is 68.7 years, and that of females is 71.2 years. As of 2020, the percentage distribution of the population for children (0-14 years), youth and adults (15-64 years), and senior citizens (65 years and above) are 26.16, 67.27 and 6.57, respectively. (14,16,17)

Based on the census 2021 of India, the following is the distribution of males to females in various age groups in India. Of the total population, the females in the reproductive age group accumulate to 25.91%. Therefore, this age group constitutes more than 53% of the entire female population of India (Table 1).

Table 1: Male to female distribution per age group in India, 2020 (18)

Age group (in years)	Male	Female
0-14	188,390,568	170,818,028
15-49	398,142,252	361,149,239
Above 50	137,440,617	137,468,329

Hinduism is India's biggest religion, constituting about 80.5%, followed by Islam at 13.4%. Christianity, Sikhism, Buddhism, and Jainism are the other religions that comprise the rest of the 6.1% of the population. The total literacy rate of India is 74%, of which the males have a literacy rate of 82% while females have 65%. (18)

1.2.3 Economy

India is a middle-income developing market economy. It is the fifth largest economy, with a nominal "Gross Domestic Product (GDP)" of US$3.535 trillion and a GDP per capita of $2,515. As of 2020, agriculture contributes 18.32% of GDP, while the service industry contributes 55% of the GDP. Tourism generates approximately 9% of the GDP. Despite the forecasted increase in the economy's overall growth rate for the upcoming years, India still has 97.7 million people living in poverty. Women, children, and other marginalised groups suffer the most due to poverty in India. Females account for fifty-three million, while males account for forty-four million. (19,20,21)

1.2.4 Health system

India's health system has two key sectors: public and private. The private sector includes both for and non-profit organisations. As perceived by the Indian population, the private sector provides quality care through secondary and tertiary hospitals, focusing on urban areas. Public health focuses on primary healthcare in villages but includes secondary and tertiary care in cities. The public health system is free for the people of India. Still, people end up using private care (70%), thus increasing out-of-pocket expenditure, which makes it difficult in terms of affordability. As most healthcare is in cities, it leads to uneven

distribution and makes it difficult in terms of accessibility, especially for rural populations. (22)

With the already existing burden of infectious diseases in India, there is also a growing burden of non-communicable diseases. Post-Covid 19, the government increased health expenditure to 1.8% in 2021 compared to 1.2%-1.6% in the previous years to tackle this burden. However, it is still low and insufficient even considering the "Nation Health Policy" target of 2.5%. Public expenses are at 32.8%, and out-of-expenditure is more than 60%. (23,24,25)

India has a decentralised public health care system. The health system in India is looked after by both central and state governments, which work under the health ministry. A unique approach is seen where the ministry of defence and railways has its hospitals and dispensaries and comes under the public sector. The private sector is categorised into for-profit and non-profit sectors, as seen below in Figure 4. (22)

India has revised the mental health care act and introduced a new one in 2017. This new act stressed integrating mental health care services in the public sector at all levels (rural and urban). The specific responsibilities of the health centres at the community level, primary-health level, sub-central level, and central are well defined. Nevertheless, primary health services' contribution to mental health treatment is still vague. (26)

From an insurance coverage standpoint, public and private mental health insurance have gained momentum post-2019. Most government and private insurance companies only partly cover the costs of treating mental health disorders, explicitly covering only the expenses related to hospitalisation. The additional costs of pre-and post-hospitalisation, counselling and behaviour therapy services are not covered under these insurances. (27)

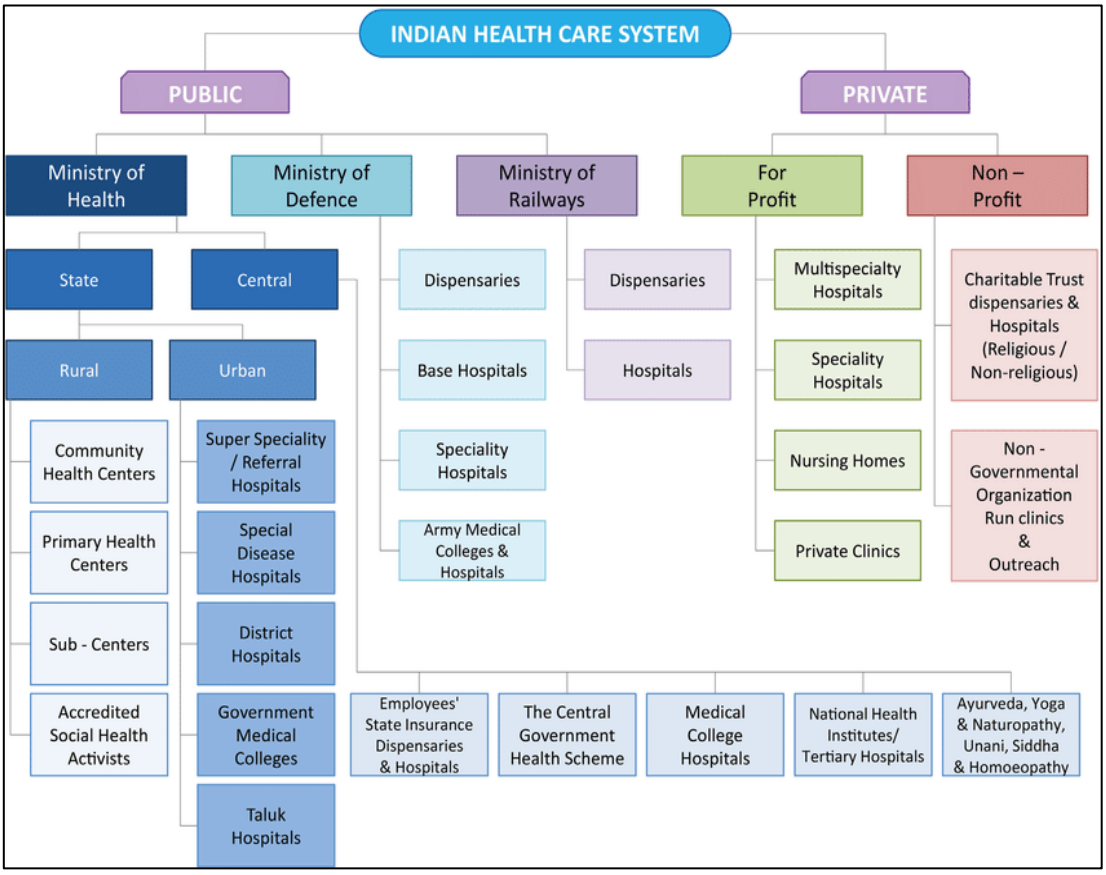


Figure 4: Health care system in India (22)

2 Problem Statement and Justification

Globally, one out of five women faces CMDs. Also, one in every three women faces violence or abuse. The factors such as poverty, wage gap, discrimination and violence affect women disproportionality, which leads to the risk of an increase in mental disorders and attempts of suicide among them. Evidence-based on the 2021-WHO report suggests that among women aged between 15-49 years, who have been in a relationship, over 23% experienced abuse. Three-quarters of mental health problems start early in women, and this group have emerged as the highest-risk group. (28,29,30)

Global studies noted that decreasing structural inequality, stigma, discrimination and promoting interventions involving "Person(s) with lived experience" are some of the key opportunities and challenges to prevent mental disorders. Despite the medical health policies and guidelines, globally, only a minority of “People With Mental Illnesses (PWMI)” receive treatment. This gap increases further in LMICs. (4,31)

Based on India's global burden of disease data, as of 2019, the prevalence of mental disorders was approximately 188 million (13.8%). Of this, females accounted for about 95 million (51%). Furthermore, the total number of DALYs due to mental disorders in women in India was 11.2 million. Between 1990 and 2019, the percentage of mental disorders in females' total DALYs nearly doubled (2.4 to 5). More than 60% of the DALYs were due to depressive and anxiety disorders in females, as shown below in Figure 5. (5,32)

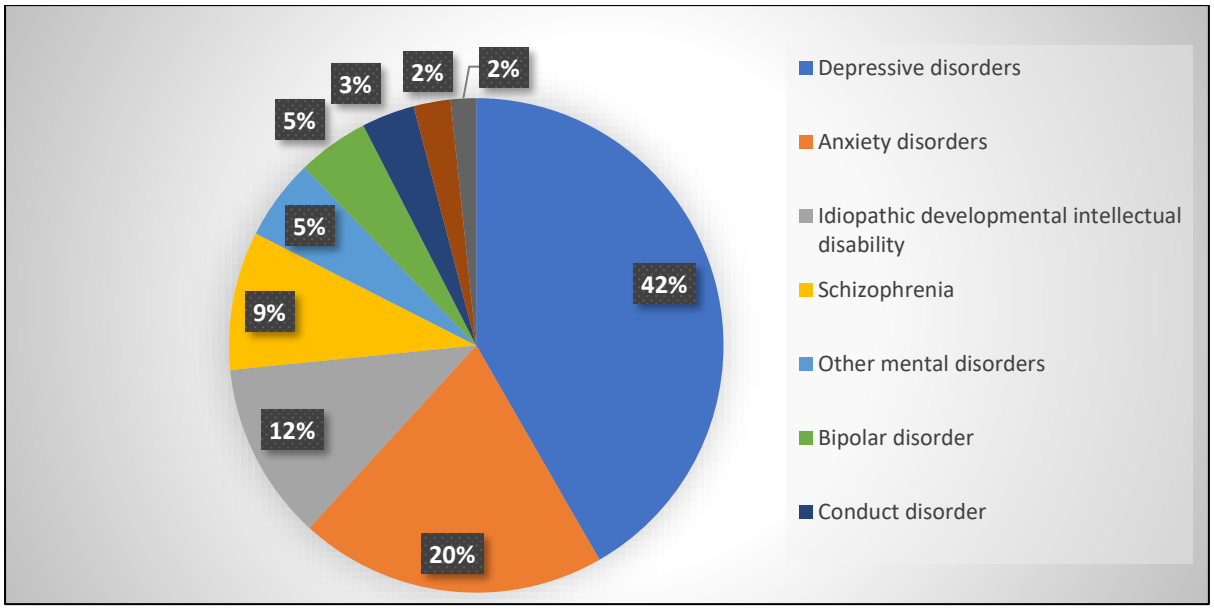


Figure 5: Percentage of total DALYs due to mental disorders in females, India, 2019 (5)

In India, the number of reported suicide cases is on the rise. There was an 8.7% increase in 2020 in comparison to 2019. With the female to male comparison, the ratio of suicide victims was 2.4 times more in females. Within women, in the year 2020, there were 44,498 cases of suicide victims, and 66.3% were in the age group of 18 to 45 years. Depressive disorders are one of the positively associated factors for this increase in suicide mortality in India, with slightly more in women. (32,33)

WHO defines “women between 15 and 49 years as women of reproductive age (WRA)”. In India, women spend most of their life span during these reproductive years. These years define essential milestones in women spanning from the start of puberty to menopause. The total DALYs of depression and anxiety in WRA are about 63% and 68%, respectively. (Table 2 and Table 3). (5,34)

Table 2: DALYs due to depression in females India, 2019 (5)

Age group	Number of DALYs	Percentage of total DALYs
All ages	4,821,231.68	100
0-14 years	97,644.97	2
15-49 years	3,022,782.70	63
Above 50 years	1,700,804.01	35

Table 3: DALYs due to anxiety in females India, 2019 (5)

Age group	Number of DALYs	Percentage of total DALYs
All ages	2,318,166.17	100
0-14 years	192,546.94	8
15-49 years	1,582,307.60	68
Above 50 years	543,311.63	24

Indian culture has a history of men occupying dominant roles while women tend to settle for inferior roles. Since birth, males have had fewer social constraints as compared to women. A girl's upbringing is more stringent and rigorous, and their disempowerment starts early in life. Therefore, women are confronted with more impediments than men regarding autonomy. Gender roles for Indian women restrict and nurture dependency. Exploring these factors and whether they affect an increase in depression and anxiety risk will considerably enhance research on women's mental health. (35)

In its recent 13th general programme of work, WHO has identified and accelerated the implementation of specific initiatives on mental health. This programme focuses on universal mental health coverage (2019-2023). Although the focus is on the twelve priority countries covering 100 million people, India is not on the list. These initiatives demonstrate their contribution to broader sustainable development goals in future, and nations not on this list could also adapt from them. (7)

When health policies around the globe for women's health are defined, there is a tendency to associate the well-being of women with that of offspring, the family, and the community. Even though this perspective is well established, and arguably women's health impacts society positively, a common focus among health policy decision-makers is too often to emphasise maternal and child health. The challenge in recent years has been a need to define women's health beyond maternal health. (36)

Post-independence in 1947, India recognised society's increasing burden of mental disorders. As a result, after deliberation for years, in 1982 National Mental Health Programme (NMHP) was started, which primarily focused on treating mental disorders. Later, it was launched at the district level as District Mental Health Program (DMHP) to overcome its limitation of reaching everyone and help further scale up the program across all regions. (37)

Nevertheless, after the revised Mental Healthcare Act was introduced in 2017, the NMHP was also enhanced. This act aimed to provide mental health care that is affordable and equally available to all people without prejudice. Some key aspects of this healthcare act focus on equity, integrated and evidence-based health care, quality care, governance and effective delivery, and a comprehensive approach to mental health. (38,39)

Since the introduction of the "Reproductive Child Health Program" in India in 1997, the focus has primarily been on pregnancy care and family planning. Last five years, with the introduction of programs such as "Pradhan Mantri Matritva Vandana Yojana" and "Pradhan Mantri Surakshit Matritva Abhiyan", the focus lies on women and their pregnancy care. Furthermore, as noted in Tables 2 and 3 above, even with the high burden of depression and anxiety among WRA, there have been no specific national mental health programs introduced for WRA and no provisions made in the National Mental Health Policy, 2017 about this from a resource and monetary allocation standpoint. (34,40)

Despite government policies and efforts, there are still considerable gaps in the availability and addressing of mental health issues from a treatment gap, prevention, and promotional perspective. Social stigma, human rights abuses, and lack of health literacy about mental illness symptoms result in inhumane practices by unlicensed and untrained practitioners. As most rural people depend on local public health facilities for mental health treatment, the lack of access to these facilities is becoming a challenge. (41)

Based on "National Mental Health Survey" (NMHS) 2017, the treatment gap for mental disorders in India was identified as more than 80%. Due to the ongoing COVID-19 pandemic, the mental health treatment gap has further widened, resulting in increased health burden and morbidity. This increasing burden and treatment gaps have forced the government to understand the need for strengthening mental health services post-pandemic. Mental health was given 0.8% of the total health budget for the first time in 2021-2022. (42,43)

Research on global mental health studies till 2015 shows that most of the contribution is from high-income countries (approximately 88%) compared to LMICs (about 1%). Most recently, the WHO also noted that in 2019 alone, the contribution from high-income countries was 8% compared to LMICs, which was 3.9%. It shows that more research contributions are needed from LMICs, which includes India. (44,45)

Although I acknowledge that women of all ages are affected by mental health illnesses, and there have been studies focusing on women's mental health in India, these studies often focus on one specific determinant. Additionally, these studies provide an overview of the determinants with a limited focus on health policy and recommendations needed to enhance women's mental health. With the existing challenges noted above being considered and the little literature available in India focusing on depression and anxiety among WRA, including individual, social, protective, and systemic factors, this review is essential. This literature review will add to the existing knowledge on factors that affect the mental health of WRA in India. This review's findings will provide a crucial view of the enhancements that need to be made to the existing policies to promote better well-being and increased focus on mental health among WRA in India.

3 Study Objectives

General Objective :

To identify the factors affecting the CMDs in women of reproductive age in India and provide recommendations to policymakers to improve mental health programs.

Specific Objectives:

1. To describe the individual factors influencing the mental well-being of women of reproductive age in India.

2. To identify environmental and protective factors affecting mental well-being among women of reproductive age in India.

3. To study and identify the gaps in the existing mental health system, policies and interventions available for WRA in India to seek mental health care.

4. To formulate recommendations for policymakers and stakeholders based on the findings to improve the current policies, reduce the treatment gap and promote mental health for women in India.

4 Methods

This study reviewed academic literature in alignment with the objectives. The search engines Google, Google Scholar and Semantic scholar and databases PubMed, PsycINFO, Elsevier, Vrije Universiteit Amsterdam library, Wolters Kluwer-Medknow and Embase were used for searching the peer-reviewed literature. Peer-reviewed literature was also explored on the Indian Journal of Psychiatry website. Individual search strategies were developed for each objective, aligned with the domain's conceptual framework, and the searches were run correspondingly. The detailed search strategies are described below (4.2 Search Strategy, terms, and combinations). Other applicable articles are searched from the reference list of the peer-reviewed literature using the snowball method. Relevant grey literature reports and data were also used from the "Ministry of Health and Family Welfare of India", "Institute for Health Metrics and Evaluation (IHME)", "The United Nations", and the "World Health Organization (WHO)".

4.1 Inclusion and exclusion criteria

Inclusion criteria

Journals, reports, articles, and guidelines on women's and girls' mental health and the mental health services available in India published in or post-2010 in English were included. All the literature, which included women of reproductive age (15-49 years), was used. In addition, literature from LMICs and global studies were included to show the similarity in the context of the findings. However, only literature with full text was included.

Exclusion criteria

Literature in non-English language and published before 2010 were excluded from this thesis. Also, literature focusing on mental health but not specifically CMDs were excluded, and the literature without full-text publication was excluded.

4.2 Search Strategy, terms, and combinations

As shown in the search table, keywords included women, females, girls, adolescents, depression, anxiety, mental disorders, mental health and mental illness. The keyword combinations are shown below in the table. This keyword combination was then further connected with the corresponding factors aligned with specific objectives, and geographic areas were connected using the Boolean operator "AND". Finally, the search terms within each factor were used with the Boolean operator "OR". The detailed search strategy is described below.

Keyword - Combinations		Specific Objective 1 - Individual Factors		Geographical area
("women" OR "females" OR "girls" OR "adolescents") AND ("depression" OR "anxiety" OR "mental disorder" OR "mental health" OR "mental illness")	AND	("biological" OR "oestrogen" OR "life-span" OR "cortisol" OR "thyroid" OR "puberty" "adolescence" OR "premenstrual syndrome" OR "premenstrual dysphoric disorder" OR "postpartum" OR "peripartum" OR "perimenopausal")	AND	("global" OR "India" OR "Asia" OR "low middle-income countries")
		Specific Objective 2 - Environmental and Protective Factors		
		("gender role" OR "culture" OR "discrimination" OR "socioeconomic status" OR "living conditions" OR "social media" OR "climate change" OR "trauma" OR "domestic violence" OR "intimate partner violence" OR "child abuse" OR "stigma" OR "health literacy" OR "education" OR "family support" OR "physical activity" OR "coping skills")		
		Specific Objective 3 - System Based Factors		
		("mental health literacy" OR "mental health system" OR "human resources" OR "affordability" OR "accessibility" OR "insurance" OR "infrastructure" OR "mental health programme" OR "digital initiatives" OR "intervention" OR "policy")		

4.3 Framework

Various conceptual frameworks have been developed to understand the dynamic interrelatedness among different determinants contributing to mental health. I examined other frameworks to describe the determinants of mental health in Indian women. Three conceptual frameworks were considered for analysis. First, a novel conceptual framework related to "social and cultural determinants of mental disorders and the Sustainable Development Goals" (SDGs) (46); second, an adapted framework of Dr Urie Bronfenbrenner's Socio-Ecological Model focusing on Mental Health and Well-being (47) and third a "conceptual framework of issues affecting the mental health of women and girls". (48)

During analysis, it was concluded that the first two models above did not align entirely with the review's objectives. The first framework in correlation with the SDGs focused only on determinants of mental health. However, the framework was missing the policy spectrum needed in alignment with the objectives of this review. The second framework, an adapted version of the ecological model, covers aspects of the objectives but is not specifically women-centred. Finally, the "conceptual framework of issues affecting the mental health of women and girls" was chosen in alignment with this review's objectives.

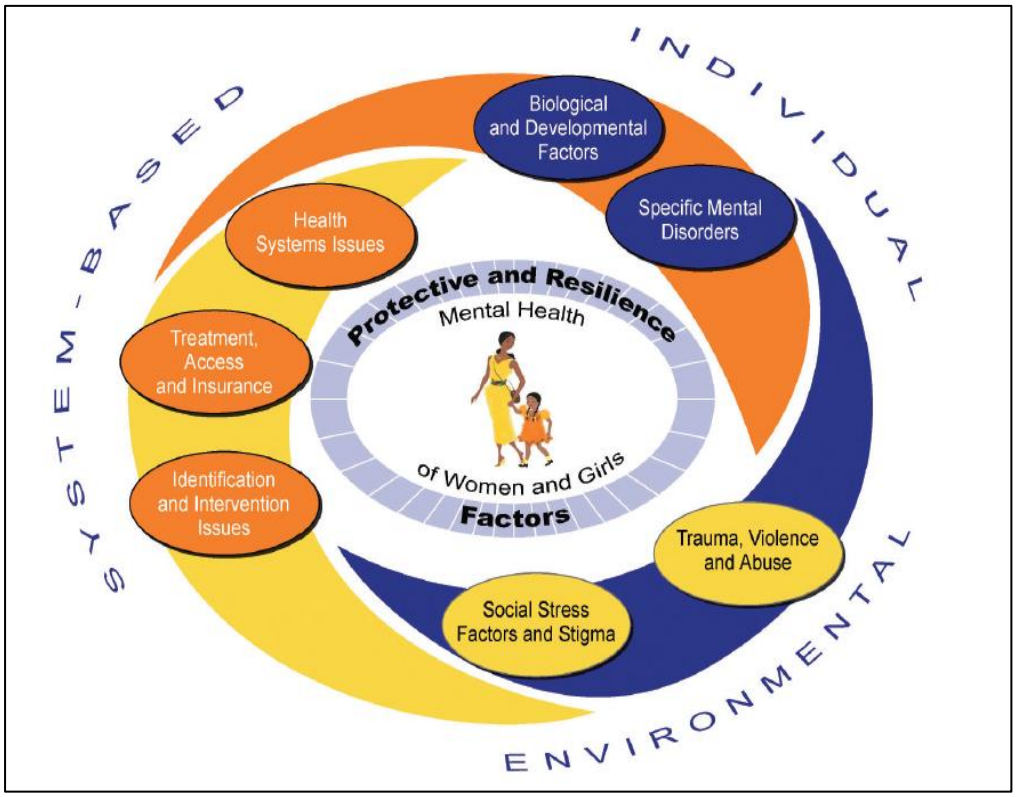


Figure 6: "Conceptual framework of issues affecting the mental health of women and girls", 2008 (48)

The above-shown visual depiction of the conceptual framework (Figure 6) was proposed as part of the "Action steps for improving women's mental health" by the "office on women's health" in the United States of America in 2008. The action steps identified eight clusters concerning women's and girls' mental health issues. The detailed components of the framework are available in Appendix A.

The framework proposes vital cross-cutting issues and recommendations about women's and girls' mental health. Individual factors consisted of two clusters, i.e., biological and developmental factors and specific mental disorders. Biological and developmental factors focus on the biological factors related to women and girls throughout their lives. With this life span approach, the focus was to understand the sex differences in correlation with high-risk periods and the neurobiological aspects affecting women's mental health. It was noted that biological differences between men and women could be associated with mental disorders. It was identified that it is essential to understand the above two elements before moving to the environmental factors as there is a substantial overlap between biological and ecological conditions. Specific mental disorders focused on the most common mental illnesses associated with identifying high-risk periods explicitly in women.

The framework emphasises that environmental factors are one of the most vital aspects to understand regarding women's mental health. It is grouped into two clusters. The first focuses on how social stigma, gender discrimination, SES, lack of awareness, living conditions, displacement, and social media affect mental health in women. The other cluster explains how early trauma in childhood, violence be it physical (intimate partner or conflict-induced), or sexual and emotional abuse in various stages of life has long-term impacts on women and girls.

The next factor and cluster are about protective and resilient factors within the community or individuals. These factors help women with better coping strategies against stress and mental disorders. The last factor is system-based which focuses on the mental health services of a country. It is categorised into three clusters. First is the health system, where low health literacy and awareness about women's mental health issues among the general population, physicians and other healthcare professionals was identified as critical barrier. The second cluster talks about the treatment gap attributed to accessibility and affordability. Finally, the third cluster identification and intervention issues are regarding policies specific to women-centric mental health.

Although the framework covers various mental disorders and is based on the United States action plan for women's mental health, in this review, this framework is used to focus on WRA in India and all the appropriate elements associated with depression and anxiety, i.e., CMDs, are included. Furthermore, from a health system standpoint, as this framework was developed and structured majorly from problems faced in the United States of America, a developed country, in this review, the additional elements of health system resources, and financing in India, which is an LMIC, will also be discussed. (48)

5 Findings

This chapter explored individual, environmental and system-based factors affecting the mental health of WRA using the conceptual framework. The findings started with individual characteristics, extended to environmental factors, and later focused on protective factors. Finally, the health system, policy and interventions were studied.

5.1 Individual Factors

This section describes vital biological factors, developmental factors and specific mental disorders that affect mental health in WRA.

5.1.1 Biological Factors

5.1.1.1 Hormones

Scientifically it is known that oestrogen is a mood-affecting hormone found in women. In women, the fluctuations of oestrogen levels correlate to the incidence of depression and other mental illnesses during their life span. As shown below (Figure 7), the first episode of depression may occur with the onset of puberty as oestrogen increases. Subsequently, more risk phases are observed during the reproductive years during postpartum and perimenopausal periods. (49,50)

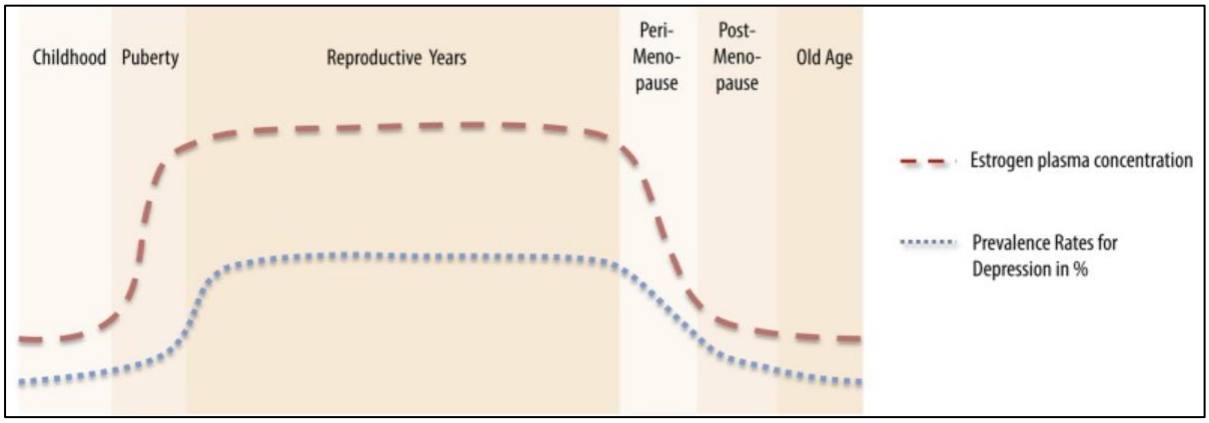


Figure 7: Risk for development of depression in women over the life span (49)

In India, as shown below (Figure 8), a similar trend is associated with CMDs, where the DALYs peak between the age of 15-49. (5)

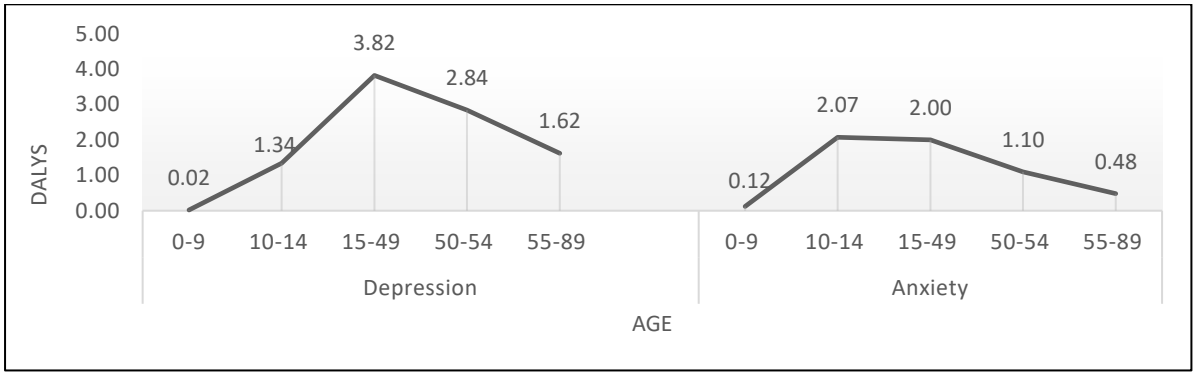


Figure 8: Percentage of depressive and anxiety disorder DALYs in women's life span, India, 2019 (5)

Any form of physiological or psychological stress releases cortisol, the stress hormone. This stress hormone imbalance in females leads to depression and other mental illnesses. According to a longitudinal study conducted in India among undergraduate students, cortisol levels were high in women and low in perceived stress responses during stressful events. The primary reason was stress due to studies and exams. The study notes that coping mechanisms between men and women differ in stress. Also, it affirms that studying hormones for future research is essential to understand sex differences and address mental health among the young population. (51,52)

Looking further at postpartum depression, a study conducted in Bengaluru, Southern India, found that elevated maternal cortisol levels were associated with postpartum depression. These findings were consistent with other global studies from Malawi and China. (53)

Thyroid hormone has associated actions with the human brain, and dysfunction results in psychiatric disorders. Studies conducted in various regions of India on thyroid patients reported CMDs prevalence among them. Also, these studies found a positive correlation between fluctuating thyroid hormones and perception of stress among WRA. An association between hypothyroidism and cortisol and depression was also noted. The range of depression found in these studies was between 10.7% to 64.2%, and anxiety ranged from 13.3% to 65.72%. Sample size, study type, and thyroid level among patients are influencing factors for the varied range of CMDs noted above. A similar study in Iran showed that hypothyroid patients are susceptible to depression. It was also recommended that these thyroid patients should be screened for depression. (54,55,56,57)

5.1.2 Developmental Factors

5.1.2.1 Adolescence

According to research conducted in LMICs, it was observed that depression in girls rises sharply during adolescence. The probability of depression is 5% in the early adolescent stage, significantly rising to 20% by the end of youth. The contributors and associated factors were directly linked to physical changes during puberty, changes in brain circuits, and hormonal-related stress factors in girls. (58)

In India, two cross-sectional studies conducted in the Eastern and Southern regions found that adolescent girls are more prone CMDs than boys. In the first study, the percentage of depression in girls was 12.5% compared to 4.3% in boys, and in the second study, 49.3% of females showed anxiety, and 40.7% showed depression. The observations of these studies align with the above research on LMICs and show hormonal changes are the leading factors associated with depression in girls. In addition, the findings also suggest that education, low-socio-economic status (SES), work at home, and the fear of being married at a younger age were significant factors for CMDs. (59,60)

A comparative study of married and unmarried adolescent girls in the urban slum of Delhi, Northern India, showed that about 85% of married girls and about 26% of unmarried girls were prone to CMDs. Among married girls, the risk of CMDs was due to conflicts with in-laws, adjustment to new homes, less independence and identity crisis. The study did not analyse the risk factors of CMDs among unmarried girls. (61)

5.1.3 Specific Mental Disorders

5.1.3.1 Premenstrual syndrome and Premenstrual dysphoric disorder

Based on a systemic review done in India in 2021, it was found that pooled prevalence estimates of premenstrual syndrome (PMS) ranged between 14.4% and 74.4%. Also, pooled prevalence estimates of premenstrual dysphoric disorder (PMDD) are between 3.7% and 65.7%. The associated factors for this prevalence were age (adolescence), stress, and environmental factors. (62)

In a review done across all states and regions in India in 2021, the prevalence rates of PMS and PMDD among adolescent and young women were noted below (Table 4).

Table 4: Prevalence rates of PMS and PMDD in India, 2021 (64)

Region - India	PMS (%)	PMDD (%)
Northern	22	4
Eastern	62	-*
Central	50	14
West	11	6
Southern	51	5
'* No studies have been found in the eastern region since 2015		

The common risk factors associated with PMS and PMD in the above studies were diet and physical activity. Also, the most prevalent symptom associated with PMS and PMDD in these studies was stress and anxiety. The review further noted that studies were done in Iran, Sri Lanka, and Pakistan and found the prevalence of PMS and PMDD higher than in India. The study did not note the risk factors associated with the prevalence in these countries. (62,63)

5.1.3.2 Postpartum/Perinatal Period

5.1.3.2.1 Depression

According to an analysis conducted on 565 global studies in over 80 countries, the prevalence of postpartum depression (PPD) globally was 17.22%. The prevalence rates varied based on different factors: marriage, spousal support, living conditions, and literacy. In this analysis, fourteen studies from India were included, and the prevalence of PPD was 18.8%. Although it was one of the comprehensive studies on PPD at the global level, fewer studies from LMICs were included due to a lack of research in these countries. (64)

In India, a critical review of ten cross-sectional and cohort studies conducted in all regions between 2015-2020 identified that the aggregated prevalence of PPD was 22% among Indian mothers. The highest prevalence was detected in the Southern part of India, with 26%. These findings were similar to a systemic review that analysed thirty-eight studies. In these studies, the factors affecting PPD were financial status, family history of psychiatric illness, domestic conflicts, high-risk pregnancies, and labour complications. (65,66)

In addition to the factors noted earlier in the studies, motherhood at a young age and the risk of PPD increase have been observed in three studies conducted in the Northern and Western regions of India. The cross-sectional studies showed 29% and 48.5% prevalence of PPD among women; however, the longitudinal study showed a 12.8% prevalence. (67,68,69)

Perinatal depression (PD) was estimated to be 24% in the rural population based on a community survey conducted in Bihar, Eastern India. On the other end, an analysis done in a hospital setting in Punjab, Northern India, showed a prevalence of 14% during the peripartum period. Related risk factors were similar to the studies above. Interestingly, these two studies found an additional risk factor of the pressure of giving birth to a baby boy. (70,71)

5.1.3.2.2 Anxiety

According to multiple hospital-based observational studies conducted in different regions of India, pregnancy-related anxiety was observed at 78.5% (Southern), 55.7% (Southern) and 20.9 % (Northern). The possible associated factors correlated to this prevalence are hormonal changes, history of mental illness, and other environmental factors. These studies used different anxiety scales as instruments in different regions, which may have resulted in varied prevalence rates. Additionally, the studies are not representative of the general population. Similar associated factors were found in another community-based study conducted in Northern India, and anxiety prevalence was at 63% among pregnant women. (72,73,74,75)

5.1.3.3 Perimenopausal Depression and Anxiety

Perimenopause is one of the transitional phases causing disturbances from a reproductive and metabolic standpoint. Oestrogen levels fluctuate during this phase, increasing the risk of CMDs. This correlation was observed in a meta-analysis report on studies across India, which showed that pooled prevalence of depression in perimenopausal women was 53.17%. Higher prevalence was found in the Western and Northern regions of India. Similarly, in three other studies conducted in Western and Northern India, the prevalence of depression among the study populations was 31% (Western), 28% and 57% (Northern), while anxiety symptoms were observed in 7% (Western), 15% and 17% (Northern). Although the risk of vulnerability to CMDs increase primarily due to the perimenopausal phase, additional contributing factors noted in these studies were chronic medical conditions, lower education, low SES, family history or history of depression, and unemployment. (76,77,78,79)

5.2 Environmental Factors

In this section, how the social stress factors affect CMDs in WRA are first discussed. Later the role of stigma and how it affects women with mental illnesses are analysed. Finally, the effects of violence and abuse on the mental health of WRA are discussed.

5.2.1 Social Stress Factors and Stigma

5.2.1.1 Socio-economic status, living conditions and unemployment

Global studies have established a positive correlation between poverty and CMDs. It was also noted that there is a disproportionate disadvantage associated with poor people when it comes to suffering the consequences of depression and anxiety. Studies have also indicated that women face more effects of poverty, and subsequently, mental health illnesses are more prevalent among them. Furthermore, inadequate housing and homelessness are vital factors associated with CMDs in LMICs. (46,80)

In India, a population-based study conducted in rural India found that low SES, low standard of living, and low education are some of the associated factors for CMDs in women. Although the largest in rural settings, the study only consisted of married women between 15-39 years and only considered one woman per household. (81)

Similarly, a mental health survey project conducted in rural Andhra Pradesh, Southern India, found that unemployment and poverty were significant factors causing depression and anxiety in women. Depression in women was 1.42 times more, whereas anxiety was 1.34 times more in men. (82)

Additionally, a mixed-methods study conducted in slums of Mumbai, Western India, found that 26.7% of females were prone to severe CMDs. Also, 24.8% of females were unemployed, and 48.6% of females earned less than $2 per day. The factors of confined living space, displacement, poor housing conditions and poor-quality homes, homelessness and inadequate water access, were associated with mental stress and illnesses in this community. (83)

A qualitative study also found the above-noted factors of unemployment and low SES to cause depression among women. The study also observed conflicts in the family and the burden of caring as other risk factors. Another narrative review on associated psychosocial factors and CMDs shows similar findings and added that the regular denial of independence and constant barriers for women to join the occupational sector have made women more prone to CMDs. (35,84)

5.2.1.2 Covid-19 (Pandemic)

Survey studies in India across several states noted that during the pandemic, it was distressing for women who were homemakers or were from the working class. Most working-class women felt socially accepted gender roles made it difficult to manage household chores, care for the old, tutor children, and do everyday office work. The lockdown policy by the government for longer durations led to food insecurity and declining mental health leading to stress, depression, and anxiety. With the larger extent of days women spent in lockdown and social isolation, it was noted that the likelihood of an increase in depression, anxiety and exhaustion was 38%, 44%, and 73%, respectively. (85,86)

A review was done to study the pandemic's effect on women in the year 2021, which included twenty-seven cross-sectional survey studies and found the prevalence of depression ranged from 2% to 49% and anxiety from 2.5% to 55%. This varied range is due to the different study populations and the sample sizes. In some studies, there were more female participants as compared to others. However, the author noted that in the majority of the studies reviewed, women had more prevalence of CMDs during the pandemic due to factors such as an increase in household chores, more care time for children and elderly at home, and increased inpatient care time for working women (nurses). (87)

5.2.1.3 Climate

The climatic change increases mental distress among people, and extreme events like drought, floods or heat waves can trigger stress, a risk factor for CMDs and Post Traumatic Stress Disorder (PTSD), as noted by the "National Institute of Mental health and Neurosciences of India (NIMHANS)". Studies done by this institute have stated that the aftermaths of the disasters caused by climate in India until 2020 subsequently increased the risk of mental health of the affected. (88)

A study conducted post floods in Uttarakhand, Northern India, showed that in the affected population, the prevalence of CMDs was more in women (85% and 79.3%, respectively) than in men (14.8% and 20.7%). Financial issues, migration, difficulty adjusting, and loss of property due to the disaster were the known causes of mental illnesses among this population. (89)

Flood victims, especially women, young and elderly, homes where women are the heads of the family, and rural populations face the worst effects of this disaster. Of the affected, about 20% face depression, 28.3% face anxiety disorders, and 36% face PTSD. The primary causes are homelessness, financial loss, food insecurity, and readjustment, as noted in this global literature review on mental health. (90)

Women are generally affected twice the amount as men in a post-climatic disaster result. The effects of PTSD, stress and depression are more prevalent among them due to the factors of extreme loss, family displacement, living in traumatised community, and age. (91)

An observational study conducted post-natural calamities of earthquake and tsunami in India found higher levels of depression and anxiety disorder among the affected population. Of this, women were more affected (24%) due to depression than men (17%) due to displacement, less privacy in disaster relief camps, and discrimination in availing resources. (92)

5.2.1.4 Social media

Several global studies have noted the relationship between social media and depression. The frequency of use results in media fatigue and mental exhaustion, leading to depression, stress, and anxiety, especially among young adults, have been commonly noted. (93,94)

Cross-sectional studies conducted in Western and Eastern India among adolescents and undergraduate students found that social media usage frequency and the average lengths of visits to social media sites (Facebook, Instagram, Snapchat, WhatsApp) were the critical factors associated with depression and anxiety among adolescents and young women. In one study, females reported 57.1% depression compared to men at 42.9%. Another study observed that "Nomophobia" (anxiety caused by fear of not using a mobile phone, i.e., "**No** **Mo**bile **Ph**one pho**bia**") is significantly associated with stress, depression, and anxiety.

Among this study population, it was observed that 56% of females had depressive features due to Nomophobia. (93,95,96)

Interestingly, a content analysis study conducted in India on social media sites such as YouTube and Facebook noted that women used these media mediums to overcome stress and depression symptoms. The key factors that helped them were the posts, facts related to depression, interaction with peer groups, interpersonal dialogue through these mediums, comments, and reactions to their stress during pregnancy and depression. (97)

5.2.1.5 Gender discrimination

The forced expectation of having a baby boy and worries about giving birth to a girl was a significant risk factor associated with depression and anxiety among pregnant women, as established through several cross-sectional studies across India. (73,98,99)

A major national representative survey report across all states, including all major religions practised in India, found that sex-centred abortion is acceptable and showed a preference for selective abortion of female foetuses. The study also noted that about 23% of Indians perceive that there is more discrimination against women than any other minority religious group. Regarding gender attitudes, the study also notes that men receive preference in terms of jobs, and women assume the traditional homemaker role. (100)

A survey study in six Indian states, capturing diversity within India, determined that daughters face more restrictions and have less independence at home than sons. Home practices, such as male preference for school and how males can easily approach elders and state their opinion, create an unhealthy environment at home for female children. Due to this sex-specific gender discrimination, which the male child in the family also recognised, females reported high vulnerability for CMDs. “Women who eat last” was an interesting study in India in different states. It included women over twenty-five years of age and shared that defined gender role in an Indian household and eating last is related to poor mental health outcomes, attributing it to lack of autonomy. (101,102)

5.2.1.6 Stigma

A study conducted on LMICs to explore the various attributes of stigma noted a very high burden of CMDs due to stigma. The consequences mentioned were that PWMI faces intrapersonal (self-stigma) or interpersonal (prejudices, discrimination) or structural stigma (inadequate mental health services) and subsequently, the help-seeking behaviour worsens among PWMI. Detailed layers of stigma are available in Appendix B, and the structural component will be discussed later in section 5.4. A survey-based study conducted in five metropolises in India among PWMI showed that females were more prone to higher rates of stigma than men. These included females suffering from self-labelling, perceived discrimination, and perceived stigma. The survey was done in urban areas and did not represent the rural population. (103,104)

A clinical study showed that women with mental illness reported substantially more perceived stigma than men. The self-stigma associated with females in this study was noted to be due to the perception of them being judged by society and related to concerns related to marriage prospects. It was also stated that being susceptible to more discrimination is a key risk factor in women’s perception of perceived stigma. (105)

A community-based study on PWMI in Karnataka, Southern India, detected a high prevalence of social stigma in females and high-income individuals. The primary risk factors

were gender and corresponding community attitude, discrimination, and social restrictiveness towards them. People from higher income groups had higher stigma scores, which could be related to their concern about reputation in society. (106)

Another hospital-based case-controlled study in Northern India showed a significant correlation between stigma and mental illness; more specifically, women from lower castes with CMDs faced more discrimination. (107)

In India, people in communities in Maharashtra, Western India, young adults and students from Gujarat, Western India, revealed minimal knowledge of mental illnesses. Like these findings, a systemic review also showed young people stigmatised views and attitudes toward PWMI. The factors associated with PWMI were attributed to lack of awareness, social distancing, and pessimistic views toward treating mentally ill people. (108,109,110)

Two cross-sectional studies were done in Northern India and found the cultural and religious myths and beliefs about the causes of mental illnesses and depression. Vaginal discharge, air pollution, reduced sexual desire, faith in supernatural causes, witchery (black magic) and belief in god's punishment over sins were found to be related to causes of depression. (111,112)

With the similarity in context, two descriptive studies conducted on women teachers and the community in Northern India showed that generally, people believe in misconceptions regarding mental illnesses. 16% of people believed in myths in the overall society, and about 62% of women teachers believed in the same. The following (Figure 9) depicts myths believed in the community related to mental illnesses. (113,114)

Rank	Myths & misconceptions
1.	Psychiatric problems are increased in people who have lot of tensions.
2.	Psychiatric problems are increased in people in who are sad and unhappy most of the time.
3.	Mentally ill and mentally restored individuals are unpredictable, potentially violent and dangerous.
4.	Mental illness can be cured after getting married.
5.	People in contact with mentally ill tend to develop odd or strange behavior.
6.	Lower socio-economic class increases the proneness to mental illness.
7.	Mental health disorders are often life long and difficult to treat.
7.	Mental illness is not a disease.
8.	Normal person will never be abnormal.
9.	Bad parenting is not responsible for mental illness.
9.	Mentally ill should only be treated in asylum.
10.	Children don't experience mental health problems.

Figure 9: Rank wise distribution of myths and misconceptions of mental illness (114)

Furthermore, due to cultural structure, informal sources such as folk and religious healing are the first point of contact for treatment over modern methods, especially in rural areas. In a study reviewing these practices, depending on the patient's religion, they visit temples, mosques, and churches or reach out to the folk sector wherein different techniques such as prayers, flogging, chanting spells or are given amulets to cure mental illness. The key reason for preference of the above practices over a medical doctor's help is stigma, feeling of safety, and lack of awareness or non-availability of professionals. (115)

5.2.2 Trauma, Violence and Abuse

According to WHO, violence is a significant public health problem that may start at a young age for men and women. Globally 736 million women face sexual, physical, and emotional violence by their partners, families, or non-partner. The ongoing COVID-19 pandemic has added to this problem, with the violence rates increasing alarmingly across the globe. The situation worsens in LMICs, where an estimated 37% of women face violence (types of violence are described in Appendix C). Also, younger women (15-24) years are most affected due to this problem, and about 16% of these women face violence from their intimate partners. More time spent with partners during the lockdown and lack of health services are some critical factors associated with this increase. (116,117)

5.2.2.1 Domestic Violence and Intimate Partner Violence (Physical, Sexual, and Emotional)

Several systemic reviews in India note that domestic violence (DV) and Intimate Partner Violence (IPV) disproportionately affect women. These reviews show that about 60% of women face depression and anxiety due to IPV. Risk factors identified were young age, low SES, disability, and abuse from family as a child. In India, by law "Protection of Women from Domestic Violence Act 2005", DV includes physical, emotional, verbal, sexual and economic abuse. (118,119,120,121)

The "National Family Health Survey of India (NFHS)", 2019-2020, has found that 30% of women between 18-49 faced physical violence, and 32% of women met IPV. Figure 10 shows the percentage of married women that faced IPV per state in India, 2019-2021. Although the survey deep dives into the various characteristics and forms of violence against women, it especially does not investigate the mental health effects of this violence. (122)

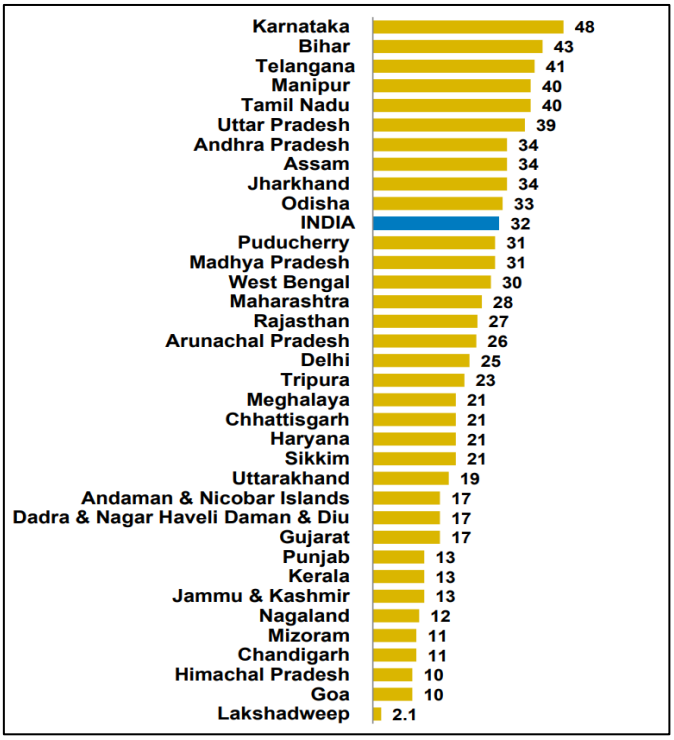


Figure 10: Percentage of married women who experienced spousal violence, India, 2019-21 (122)

Dowry is a practice in India where the bridegroom's family demands wealth from the bride's family to proceed with the marriage. Not fulfilling this demand may result in harassment and violence against women. Studies conducted in India on dowry survivors and divorced women showed that the survivors encountered violence, dowry harassment by in-laws, loss of self-respect and identity, trauma, and financial loss. Also, these studies showed a high prevalence of CMDs among WRA. Furthermore, another prospective cohort study conducted in India based on over twenty thousand adolescent married and unmarried women found that married adolescents (15-19 years) were 3.3 times more prone to severe depression than unmarried adolescents. This study also noted that one of the primary reasons for depression was dowry-related abuse by husbands. (123,124,125)

Furthermore, two studies conducted among pregnant women in Western and Eastern India also found similar reasons. In these studies, depression disorder was found in 41.5% and 36% of the study populations. (126,127)

DV and its effects on mental health were also studied in Northern India, wherein the women who faced DV in the previous year had 2.5 times more chances of reporting CMDs and suicidal thoughts. The study also showed that suicide attempt was committed by 0.8% of women participants in their life. (128)

Also, a study conducted to understand the controlling, threatening and psychological abuse among urban dwellers in Mumbai, Western India, reported that 70% of dwellers experience DV. Among them, 60% had depressive features, 40% said to have anxiety symptoms, and 17% expressed thoughts of committing suicide. (129)

A hospital-based qualitative study in Uttar Pradesh, Northern India, revealed that women who faced Sexual Violence (SV) had symptoms of CMDs. The other key aspect noted was that the victimisation of women who have faced sexual assault also increased fear and anxiety. Sexual assault by family (in-laws, uncles) and teachers were other critical causes of PTSD. The study mentions that a mixed methods approach is required to understand SV and the correlation of CMDs further. (130)

Similar findings were revealed in a systemic review of married Indian women exposed to SV, where the prevalence of CMDs ranged from 9% to 80%. The study also showed that among women who faced SV and marital rape, 14% had symptoms of PTSD. (131)

A survey was done in two Northern states in India wherein 12,972 girls participated. It concluded that about 25% of girls had past experiences of violence, either emotional, physical, or sexual. Of these, depressive symptoms were seen in married (8%) and unmarried girls (5%). Contributing factors in married women were IPV, and among unmarried adolescents, it was internet-based harassment. (132)

The association between depression and childhood abuse has also been observed in two other studies (retrospective and cross-sectional) conducted in Southern India. In one of the studies, 17% of women with a history of child abuse showed depression. (133,134)

5.3 Protective and Resilient Factors

A qualitative study conducted in Southern India among low-income working mothers residing in slums found that the prevalence of CMDs was high among this study sample. The study found that the positive protective factors for these women to cope with CMDs were support from family and husbands, social support from friends, and colleagues at work, support at home for household chores, financial support from husbands and a better work environment. (135)

Likewise, another qualitative study conducted in Western India on mental health service users found that familial support was a critical protective factor for women to cope with CMDs. Additionally, this study adds that peer, financial support, education, increasing awareness and provision of required resources and treatments are other critical protective factors to be considered. (136)

A cross-sectional hospital-based study conducted in Eastern India among women with depression found that the critical coping and resiliency factors were seeking social support, acceptance of the condition, humour, and a positive attitude towards depression. (137)

A population-based study was done in Northern India to understand the coping mechanisms of Indian homemakers with chronic stress. The results showed that women pray, confide in the family, and distract themselves by watching TV shows which were vital coping strategies to deal with day-to-day stress. Similarly, studies done in China show that social support and good family relationships positively impact CMDs. (138,139,140)

In Western India, a comparison study between married non-working and working women tested them on positive and negative coping mechanisms. The results showed that employed females had effective coping mechanisms and better mental well-being than women not employed. The following factors were attributed to better coping strategies in working women: financial and emotional autonomy, active social life outside the home and better physical health; on the other hand, homemakers showed negative coping styles (especially learned helplessness). (141)

5.4 System-based Factors

This section covers India's mental health system, categorised under health system issues, treatment access and insurance and corresponding interventions related to mental health.

5.4.1 Health System Issues

Although a national health programme is available in India, implementation across various states has been noted as a problem according to the latest National mental health system report, 2015-2016. (142)

5.4.1.1 Human Resources

According to the WHO national mental health atlas of 2017, it was identified that the total number of mental health workers (per population of 100,000) was 1.93, the number of psychiatrists was 0.29, and the number of mental health nurses was 0.80 in India. The deficit was above 70% just for psychiatrists. (143)

The national mental health system report, which covers twelve states [1] below across India, found that the number of trained doctors in mental health per 100,000 population was low in all the states compared to the high-income countries where the number (per 100,000 population) of psychiatrists is eight and the nurses is 29. The annual training intake on mental health in the affiliated institutions ranged from 0-52% (Figure 11). (45,142)

	AS	CG	GJ	JH	KL	MP	MN	PB	RJ	TN	UP	WB
1. Psychiatrists	92 (0.29)	37 (0.14)	318 (0.53)	103 (0.31)	400 (1.20)	37 (0.05)	16 (0.56)	127 (0.46)	68 (0.10)	214 (0.30)	297 (0.15)	506 (0.55)
2. Medical doctors trained in mental health	100 (0.32)	21 (0.08)	242 (0.40)	--	917 (2.75)	39 (0.05)	278 (9.73)	380 (1.37)	398 (0.58)	1334 (1.85)	220 (0.11)	2500 (2.74)
3. Clinical psychologists*	20 (0.06)	17 (0.07)	14 (0.02)	19 (0.06)	211 (0.63)	11 (0.02)	14 (0.49)	12 (0.04)	9 (0.01)	68 (0.09)	49 (0.02)	42 (0.05)
4. Nurses trained in mental health	168 (0.54)	7 (0.03)	936 (1.55)	--	818 (2.45)	33 (0.05)	215 (7.53)	3 (0.01)	6 (0.01)	7555 (10.47)	60 (0.03)	18 (0.02)
5. Nurses with DPN qualification	42 (0.13)	5 (0.02)	39 (0.06)	63 (0.19)	--	--	6 (0.21)	--	6 (0.01)	--	14 (<0.01)	12 (0.01)
6. Psychiatric Social workers	22 (0.07)	22 (0.09)	58 (0.10)	8 (0.02)	15 (0.04)	7 (0.01)	19 (0.67)	32 (0.12)	6 (0.01)	37 (0.05)	44 (0.02)	110 (0.12)
7. Rehabilitation workers and Special education teachers	193 (0.62)	235 (0.91)	685 (1.13)	18 (0.05)	3429 (10.26)	--	171 (5.99)	--	--	1911 (2.65)	--	229 (0.25)
8. Professional and Paraprofessional psychosocial counsellors	--	127 (0.50)	499 (0.83)	39 (0.12)	931 (2.79)	--	1754 (61.42)	288 (1.04)	--	1153 (1.60)	--	407 (0.45)

Note: DPN- Diploma in Psychiatric Nursing; number in parenthesis indicate rate per 1,00,000 population; (*) - Information obtained from Indian Association of Clinical Psychologists and other sources.

Figure 11: Mental health human resource capacity across states (142)

A cross-sectional study based on online psychiatric training seats conducted in 2019 across all states in India noted that all states in India (except Mizoram, East India) have a psychiatric deficiency of 75%, and annually only 868 new psychiatrists are trained. One of

[1] AS - Assam, CG - Chhattisgarh, GJ - Gujarat, JH - Jharkhand, KL- Kerela, MP - Madhya Pradesh, MN - Manipur, PB - Punjab, RJ - Rajasthan, TN - Tamil Nadu, UP - Uttar Pradesh, WB - West Bengal

the reasons noted was the migration of psychiatrists to developed countries and the more privatising medical education and institutes. (144)

5.4.1.2 Mental health literacy and training

In a study conducted across twelve states in India, although formal training programs for mental health care were present, they have been active in less than 50% of the districts in these states. Similar findings were noted in cross-sectional studies done in multiple states of Maharashtra, Gujarat, and Karnataka. In the Maharashtra study, about 64.28% and 30.43% of medical nurses and medical service users were ill-informed, ill-educated, or ill-trained on mental disorders. In all these studies, the medical officers and nurses believed that women with PD had unrealistic expectations, unable to cope with motherhood, and believed in myths and stigmatised views as causes of this PD. (142,145,146,147)

The lack of mental health literacy has been noted in studies done on adolescent girls in Southern India through questionnaires and vignettes. The results showed that in one of the studies, only 8% of the girls could identify depression. However, in both these studies, the girls did not believe that seeking medical professional help or need for intervention was important. Also, the preferred method of seeking help was through informal sources such as family. Similar findings were shown in a mixed method study conducted in Vietnam, where medical health literacy was very low among participants, where the study sample size majorly consisted of women. (148,149,150)

5.4.1.3 Communication

The national mental health system report noted that although the Information, Education and Communication (IEC) materials were available in local languages in multiple states and districts, the utilisation of these IEC materials was significantly less or, in some cases, none. The channel for sharing IEC materials was either through pamphlets or posters. Also, there was no state-specific plan to distribute these IEC activities. (142)

5.4.1.4 Mental health financing

A systemic review of the National Mental Health Policy and union budget allocation for mental health 2021-2022 noted that 93% of the overall mental health funding was allocated to two state-level institutions in Karnataka, South India and Assam, East India. Also, it was noted that for the successful execution of the “Mental Health Care Act (MHA)”, 2017, the estimated budget would be Indian National Rupees 940 million. However, due to the expenditure over previous years being Indian National Rupees 50 million, it was noted that there is under-utilisation of funds. Also, due to already existing financial issues at the state level, the implementation of MHA is further hindered. (151)

A global return on investment analysis that included countries from low to high income showed that scaling up treatment of CMDs leads to sizeable economic productivity, so governments should enhance and invest in their mental health programs. (152)

5.4.2 Treatment access and insurance

5.4.2.1 Infrastructure and access

As shown below in Figure 12, the number of government mental health care facilities per NMHS states, only the states of Tamil Nadu and Karnataka, Southern India have a more significant number of facilities than other states. However, these facilities are less in number in rural parts, making them inaccessible to people not staying in cities, especially women. Also, due to no proper coordination between private health facilities and government agencies to maintain the details electronically, data from the private sector is unavailable. Likewise, the specific details of mental health clinics dedicated to women, especially for treatment for CMDs, were not noted. (142)

	AS	CG	GJ	JH	KL	MP	MN	PB	RJ	TN	UP	WB
1. Mental hospitals	1	2	6*	3	3*	2	0	1	2	1	3*	6*
2. Medical colleges with psychiatry department	6	6	14	1	7	14	2	7	5	20	28	7
3. General hospitals with psychiatry units	3	16	20	2	18	6	3	29	--	16	16	11
4. Mobile mental health units	--	--	4	--	22	--	--	--	--	432	--	--
5. Day care Centres	4	--	9	4	43	2	--	--	--	137	--	4
6. De-addiction units / Centres	6	49	17	2	66	7	24	38	6	120	--	30
7. Residential half way homes	1	--	7	1	--	--	4	--	--	43	--	9
8. Long stay homes	9	--	1	2	146	--	--	--	--	7	--	5
9. Hostel (quarter stay homes)	--	--	1	--	--	--	1	--	--	--	--	--
10. Vocational Training centres	2	26	9	2	10	2	4	--	1	17	--	5
11. Sheltered workshops	--	3	5	2	6	--	--	--	--	--	--	3

Note: * One mental hospital is upgraded to centre of excellence in mental health i.e., (Institute of Mental Health & Hospital, Agra, Uttar Pradesh; Hospital for Mental Health, Ahmedabad, Gujara; Institute of Psychiatry- Kolkata, West Bengal; IMHANS, Kozhikode.

Figure 12: Mental health care facilities in NMHS states (142)

An analysis conducted on the provisions of the MHA about women facing mental illness found that in the female wards of the regional mental hospital of Pune, Western India, the sanitary conditions of patients were inadequate. There was no privacy for women during bathing; the patients' dresses were not in an appropriate state. Similarly, in multiple government hospitals across the country, it was found that in female wards living conditions of the mentally ill patients were sub-optimal. (41)

DMHP, 1996, was launched to improve accessibility and focuses on community-based service programs related to mental health in India. As shown below (Figure 13), the main components and services of DMHP covering both men and women facing mental illnesses are to provision satellite and mobile clinics, provide school and college counselling services and link various groups to non-governmental organisations. Although the program should cover 718 districts of India, as of 2021, it is currently available in 241 districts. Furthermore, not all districts have mental health professionals available to implement it successfully. (153)

District Mental Health Program:	
Service provision: provision of mental health outpatient and inpatient mental health services, with a 10-bed inpatient facility	
Outreach component	1. Satellite clinics: four satellite clinics per month at community health centres (CHCs)/ primary health centres (PHCs) by the DMHP team 2. Targeted interventions 3. Life-skills education and counselling in schools 4. College counselling services 5. Workplace stress management 6. Suicide prevention services
Sensitization and training of health personnel (at district and subdistrict level)	
Awareness camps to promote awareness of mental illnesses and related stigma, through involvement of local Panchayati Raj Institutions (PRIs), faith healers, teachers, leaders, etc.	
Community participation	1. Links with self-help groups, family and caregiver groups, and nongovernmental organizations (NGOs) working in the field of mental health 2. Sensitization of enforcement officials regarding legal provisions for effective implementation of the Mental Health Act

Figure 13: DMHP components (153)

5.4.2.2 Insurance

In line with MHA 2017, the government of India launched an insurance scheme, "Ayushman Bharat Yojana (PM-JAY)", in 2018. Although this scheme focuses on mental health illness treatment and includes women and girls, it only applies to public sector hospitals. Private hospitals and facilities have been kept out of this scheme. In India, most health care financing happens through individual out-of-pocket payments. Financial constraints are one of the limiting factors to not seeking mental illness treatments noted by 28% of rural and 20% of urban populations. Since respective states are responsible for implementing the scheme and most of the CMDs being treated by private hospitals, and less accessibility in rural areas, the treatment gap is further increased for CMDs. Furthermore, the qualification criteria for the insurance scheme private or public sector are overly complex. Private insurance schemes have a predetermined premium cost for pre-existing conditions, increasing out-of-pocket expenditure. They do not consider factors such as duration of treatment, non-compliance by patients as the treatments are generally involuntary, and rehabilitation services such as counselling. (27,154,155)

A national sample survey data of persons with mental disorders in outpatient and hospitalisation cases were analysed to find the health care utilisation and financial support offered by public and private insurance schemes, which included ABY. The findings of this study showed that over 65% of women preferred private health care services. The significant reasons for depending on private care were sub-optimal quality of care, long waiting time and poor hospital resources in public care facilities. The mean insurance coverage for women aged 15-44 was 25.85%. There were high out-of-pocket expenses incurred due to the preference for private hospitals. Less awareness of public insurance schemes and low accessibility of facilities influenced women's poor public health care utilisation. (156)

5.4.3 Identification and intervention issues

5.4.3.1 Screening and intervention programs

India has introduced several interventions (pilot and ongoing) for women. For example, "Janani Suraksha Yojana" was introduced in 2005. Women who deliver at public hospital-based facilities would receive one-time cash transfers from the central government of India to encourage institutional deliveries. A study was conducted to see if this scheme affected women's mental health in 2015 and saw a reduction in maternal depression rate (8.5%) among women who received cash. However, one primary impedance was that money was not transferred consistently due to administrative issues. (157)

However, several interventions and initiatives have gained momentum post-MHA 2017, collaborating with NMHP and DMHP to identify, treat, and promote mental health. Depicted below (Table 5) are various private and government-initiated community-based programs (Q), capacity-building programs (C), and digital-based interventions (D) that take into consideration WRA and CMDs. These programs were initiated to enhance and promote the current mental health services.

Table 5: Interventions of mental health care - achievements and issues in India

Intervention	Program description	Targeted Population	Impact (A) and/or Issues (I)	Years in effect
"Amma Manasu", Kerala, Southern India (158) (D+Q)	• Integration of regular screening during the perinatal period by community health workers for CMDs	Pregnant women	• Successful state-wide implementation of the community-based program (A) • Positive outcome of a reduction in the severity of depression (A)	2017 - Present
"Systematic Medical Appraisal Referral and Treatment Mental Health Project", Andhra Pradesh, Southern India (159) (D+Q)	• Digital technological use for screening, referral, and treatment of CMDs by primary health care workers • Anti-stigma campaign	Individuals at high risk of CMDs	• Combined approach helped increase service utilisation (A) • Stigma attached to the mental health in these districts decreased (A) • Further evaluation on a large-scale needed as a study conducted in one district only (I)	2014-2019
"School Health Programme under Ayushman Bharat" (160) (C)	• Integrating mental health programs at the school level through training teachers on mental health awareness and CMDs prevention	Children up to 19 years	• Training many teachers is a time taking process (I) • Lack of availability of teachers in rural regions (I) • Too many programs under one umbrella (I)	2018 - Present
"NIMHANS Stree Mano Raksha Project" (161) (C)	• Training in trauma-informed care	Women facing Gender-Based Violence	• No studies found on utilisation and efficacy of the program yet	2022

"Tele mental health program 24*7" (162) (D)	• Network of twenty-three mental health centres that will provide counselling services to deprived areas in the country, predominantly rural areas	The general population of India	• Will reach a wider audience (A) • Less clarity of operational aspects of the programs (I) • Currently being field tested, and overall feasibility and utility are unknown (I)	2022
"MANAS Project", Goa, Western India (163) (C)	• To test if non-specialist community workers could be integrated into primary health care centres for the treatment of CMDs	People with CMDs	• Cost-effective intervention for screening by encouraging task-shifting (A) • To further understand depression recovery rates among people with CMDs, a more extensive study across various regions is needed (I)	2007-2009
" 'SMS' for mental health", Bangalore, Southern India (164) (D)	• To test if sending out text messages was an appropriate method to promote mental health in the Indian context	Girls aged 16-18 years	• Acceptable method among young women from low-income urban areas (A) • To further scale up the project, consent, privacy, and confidentiality issues must be addressed (I) • Secondary support services to be created for additional information sought by girls as part of their discussion (I)	2014 for one month
"Dava-Dua model", Gujarat, Western India (165) (Q)	Collaboration of psychiatrists and faith healers with a patient-centred approach to build trust in service providers	Psychiatric patients	• Successful in delivering psychiatric treatment services to the PWMI (A) • Further studies on ethical issues concerning religious beliefs are needed before scaling up the project (I)	2008-2018
"Nae Disha" intervention-Uttarakhand, Northern India (166) (Q)	Curriculum-based mental health and resilience intervention focused on the reduction of symptoms related to CMDs, increased self-efficacy, resilience and improvements in attitudes toward gender equality	Disadvantaged young women	• Scalability of the program is achievable (A) • Low-cost intervention (A) • For external validity, a large-scale study is needed (I)	2015-2016 for 15 weeks

Hybrid teaching models -Training Primary care doctors, Eastern India (D+C) (167) Accredited Social Health Activists (ASHAs), Southern India (D+C) (168)	To build capacity at primary care centres for more extended periods by using digital platforms to reach a population where psychiatrists are not present	General population	• Number of cases identified increased due to better skills retention (A) • Community workers identified severe mental illness quickly but identifying CMDs was a challenge (I) • Transfer of doctors to different areas made it difficult to retain them (I)	2017-2018 2018-2021
Thinking healthy program – Western India and Pakistan (169) (Q)	Local women within the community to provide psychosocial support based on principles of cognitive behaviour therapy by providing three-day training and a fixed salary per session	Depressed mothers	• Reduction in the prevalence of depression (A) • Peers' emotional health needs to be considered, as they are not professional healthcare workers (I)	2012-2014

In India, these programs have been tried and tested across various settings and have included women as a target population in their study. Although these interventions have been effective in enhancing mental well-being, further scaling up these successful interventions at the national level is required. Studies in Peru, Brazil and other LMICs have also shown that community-based interventions such as community outreach programs (training and awareness) similar to India, as noted above, address mental health effectively. Likewise, task shifting and task sharing based on studies in LMICs reviewed by WHO and as shown above in India to address the shortages of mental health human resource capacity is also an advocated method. (4)

To address gender equality, a mixed-method gender-based intervention done in a district in Western India engaging male members showed a greater acceptance of gender equality and change in behaviour in the intervention group. The interesting point about this intervention was that it was primarily focused on engaging and encouraging men. The limitation was that it lacked a counterpoint view of women as they were not part of the study population. (170)

DV training support programme in the United Kingdom, similar to the "NIMHANS Stree Mano Raksha Project" (161) above, showed that to improve the response of women (over the age of 16) who face DV, conducting a two-hour training to the clinical staff and one-hour training to the support staff at primary clinical centres is a cost-effective intervention. The outcome of this program helped primary care staff respond better to women who faced DV, encouraging more women to talk about the DV they encountered. (171)

In Australia, Canada, New Zealand and the United Kingdom collaborating with "Person(s) with Lived Experience" and getting their insights on mental health research, intervention programs and policy-making process have yielded better outcomes on overall treatment care packages created and health outcomes of patients. However, it was noted that their involvement is minimal in Asia. (172)

5.4.3.2 Alternative medicine

In India, in 1995 government created a department for the Indian system of medicine and homoeopathy. This was to improve, encourage and integrate the system of alternative medicine use in India. In 2003, it was renamed "AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy)". These alternate medical treatments have been used for mental illness treatments for centuries in India. As of 2018, there are over 700,000 registered AYUSH doctors in India. There are ongoing clinical trials to further understand these programs' efficacy and provide evidence-based recommendations and approaches to scale up these programs across India. No specific WRA and mental health-related studies were found for AYUSH except for yoga. (173,174,175)

Yoga is perceived as a form of exercise that helps manage stress effectively. A comparative study was done on women in Western India to test this. One group had joined yoga classes, and the other did not, and they were re-evaluated. The result showed that yoga was an effective mitigating factor in reducing anxiety, depression and stress among women who attended yoga sessions. A similar randomised control study was done at a tertiary hospital in Southern India among caregivers of patients and saw a significant reduction in CMDs and improved stress in the group that practised yoga compared with the control group. Similar results were seen when a randomised control study was done in Germany to show the positive effects of yoga after three months on patients with depressive disorder. (176,177,178)

6 Discussion

India is a fast-growing economy with a vast population; there is double the burden of communicable and non-communicable diseases. CMDs among women are a significant public health concern. This paper's objective was to identify the factors affecting the CMDs in women of reproductive age in India and identify the gaps in the existing mental health system, policies and interventions. The framework helped to identify these factors and the interlinkages among various layers during this review. However, as it was created in a developed nation, for an LMIC like India, the additional elements missing, such as health systems resources, infrastructure and financing, are also relevant and covered as a part of this review. Therefore, adapting this framework based on the appropriate LMIC context is also essential, as all elements would not apply to a developing nation.

Though all the findings above hold for this burden, there are a few important ones that need more attention and working on these in the future could decrease the prevalence and treatment gap. One of the findings of this review was that biological factors play a vital role in WRA, and the risk of developing CMDs due to them is very significant. However, the awareness around understanding the "Why" of this is very little across communities in India. As further explained below, there is also a strong interlinkage between these and environmental factors.

Through findings, the first critical factor recognised was gender discrimination against WRA, which can be attributed to various reasons, discussed later in this section. The second stand-out element was the stigma around mental health, which has been addressed worldwide yet is highly important in the Indian context at the individual, community, healthcare and policy levels. Findings show that due to religious practices and views prevalent in society, including medical practitioners, CMDs are not given the importance and attention that PWMI need to receive the proper treatment. There was an evident dependency on system-based factors such as the utilisation of health services and stigma noted through findings.

Third, an important factor identified was exposure to physical, verbal or psychological abuse on WRA in childhood or adulthood, which increases the risk of CMDs. The exposure to violence was further exacerbated with the ongoing COVID-19 pandemic due to lockdown and more restrictions on WRA's independence to leave home, thereby being more exposed to violence by partners or family. The last factor of the health system and its shortcomings concerning CMDs in WRA needs to be addressed to uplift the mental health and well-being of women in India.

The role of individual factors and their influence on CMDs in WRA

While starting with biological factors, one of the essential thoughts was to answer the question of 'why is it crucial to study them in relation to public health?' To further understand this, findings reveal that women have oestrogen hormone that fluctuates throughout their reproductive life, unlike men, severely affecting CMDs. If these vulnerable periods are identified and then focused upon, we gain better insights to formulate the necessary interventions. In addition, these phases in women's lives lead to different mental health issues interlinked with environmental factors and gender roles.

In India, talking about menstruation is considered taboo, and a question arises whether people are even aware of premenstrual syndrome as there is very little awareness about it and how to approach it. Introducing screening checks in schools or communities based on interventions noted in findings for identifying cases of PMDD will be helpful. Adolescent girls during developmental stages face more restrictions than boys in the same households, and their autonomy is lost when they are young adults. It is linked to the environmental factor of gender inequality. As noted in the findings, programs should focus on this age group by planning interventions involving fathers/men from the family to promote gender, which is also the United Nations Sustainable Development Goal.

In India, women also face a high level of stress and anxiety, which is induced due to the pressure of in-laws and families to give birth to a baby boy. In addition, women are labelled as bad mothers or unable to cope with motherhood. However, there is little understanding of PD that they may suffer. This further shows the interlinkage between environmental and systemic factors, i.e., lack of health literacy, stigmatised views among the general public and, in some cases, even medical practitioners.

As shown in the findings above, individual factors play a vital role in WRA, increasing the risk of CMDs. However, there can be two approaches to reducing this effect: first, improving health workers' awareness through training on perinatal depression and anxiety. Second, peer-based intervention where mothers act as delivery change agents to share the experiences, using pictures and narratives focused on behavioural activation.

The role of environmental and protective factors and their influence on CMDs in WRA

In India, as shown in the findings, a chauvinistic gender view leads to gender inequity. Moreover, right from childhood, there is more gender bias toward educating boys than girls, contributing further to CMDs, as it nurtures the fear of anxiety among girls as they enter adulthood.

Adding to this problem are the societal practices of sex-selective abortion, i.e., seeking only a male child and aborting a female foetus and dowry. As the findings show, these practices create unwanted risks of CMDs due to conflicts with in-laws and husbands. Although India has implemented laws to ban these practices, due to fear of divorce, in some cases, physical violence suppresses their voice to speak against these practices. Furthermore, the discriminatory view that women are responsible for household chores and stay as good "wives" creates a vicious cycle that builds chronic stress.

The crucial findings of protective factors which help overcome this stress among WRA were familial support, peer support and independence in pursuing employment. Steps must be taken on the grassroots level to empower women and increase literacy. Creating more opportunities for women's work, especially in rural areas, increases their financial security, which helps them overcome the stress that induces CMDs. Even though there are programs introduced in India around women empowerment, the systemic issues at the state level to implement these are still a problem which needs to be addressed by the government. (179)

Stigma is deeply rooted in Indian society and is an essential factor that impedes women's use of mental healthcare services and help-seeking behaviour. The evidence clearly shows that this factor affects WRA at individual and community levels through self-stigma or by others discriminating against PWMI. Also, across various facets of society, it is primarily believed that mental health is not a condition that needs treatment but rather is caused due to black magic or other myths. This lack of awareness or misinformation leads to believing that PWMI does not require medical or psychological support. Although pilot interventions

have been introduced recently in India to create more awareness of stigma, further utilisation of already existing communication interventions such as radio would effectively promote mental well-being to far-reaching parts of society. Literature shows that this medium is successful in various countries such as Nigeria, The United Kingdom, Syria and Afghanistan in promoting gender-specific interventions. (180)

The evidence clearly shows that even though the cases are underreported in India, the abuse and violence in various forms are staggeringly high against WRA. Abuse by husbands and in-laws, marital rape, and internet-based harassment have taken a toll on WRA and contribute severely to the increase in CMDs. WRA carry a history of abuse since childhood, which shows that this is normalised in society. Even with the laws drafted against DV and interventions started to address this, due to the sensitivity of the problem, implementation and systemic issues, there is a need for community awareness, and the primary responsibility lies with either state level or district level program enablers.

Mental Health System Challenges

India has enhanced national and district-level mental health programs over the past decade. Findings show several pilot studies in India coordinating with the government or private sector for mental health. However, there is a systemic issue with implementing these programs due to a lack of skilled human resources, low financing for mental health programs, and low utilisation of the allocated funds, training and communication. Despite rising cases of CMDs and suicides caused by these disorders and being included as an outreach component of DMHP, the government has yet to implement a national strategy for suicide prevention.

Introducing multiple programs ("Yojanas") also adds to the problem, as the proper implementation and communication to the target population is still insufficient. As findings show, for example, the cash transfer program that helps reduce maternal depression needs further strengthening to overcome administrative issues. The government's role is key to establishing a well-recognised medium in generating this awareness of the programs. There is also a need to decentralise funds to all central, state and district level hospitals. Currently, only a few institutions receive most of the funds for research, development and implementation of interventions for mental illness.

The lack of accessibility to public hospitals in various states and regions forces WRA to seek mental health care in private hospitals. The complexity of how the private insurance schemes are built not to cover the additional care needed for PWMI, thereby creating a high out-of-pocket expenditure, further drives WRA away from seeking treatment. The affordability of private insurance is an issue for people with low SES, so seeking care in public hospitals is the only option. Though ABY covers public mental health care costs for government hospitals, the inadequate quality care and limited public mental health institutions and services available for treatment add to the existing treatment gap.

6.1 Strengths and limitations of the study

Throughout this study, the various interlinkages between factors that affect CMDs in WRA in India have been shown systematically. The framework has also helped logically and sequentially explore biopsychosocial dimensions, bringing the necessary attention to the policymakers on the existing burden of CMDs in WRA in India. One of this study's additional strengths is that the literature includes a combination of quantitative, qualitative, and mixed methods studies providing analysis from various viewpoints. Finally, this study shows a holistic view of the multiple factors that affect the mental well-being of WRA.

One of the limitations of this study is that due to the vastness of various regions in India, there could be a possibility that all relevant literature on every state may not have been included for all factors. Another limitation is that some of the cross-sectional studies used in the review had a small population, which meant results could not be generalised. Furthermore, some studies have used self-reporting techniques for reporting symptoms of CMDs and have not been clinically diagnosed, which could have contributed to their results bias. Additionally, various studies in the review define CMDs with the inclusion of PTSD. However, this may not always meet the current diagnostic criteria set by the "International Classification of Diseases (ICD-11)" or the "Diagnostic and Statistical Manual of Mental Disorders (DSM-V)". Finally, due to the limited number of longitudinal studies, establishing causal relationships among factors was difficult; future studies need to consider the longitudinal approach.

7 Conclusion and Recommendations

7.1 Conclusion

In India, gender disadvantage and environmental and system-based factors contribute significantly to the risk for CMDs among WRA. Biological factors also play an essential role as women in their reproductive years are especially vulnerable. Gender discrimination, changing climatic conditions, poor SES, and physical, verbal and sexual abuse increase the likelihood of WRA being prone to CMDs. There is a widening treatment gap due to low health literacy and self-perceived and community-induced stigma. It leads to minimal help-seeking behaviour among WRA. Although CMDs are a public health problem, especially among WRA, government financing for this is still minimal. As established from the findings, less accessible healthcare and other system-based factors induce dropouts of women seeking mental health care. Familial and societal support is crucial in protecting the increase of the CMDs among WRA. Thus, cross-sectoral interventions and actions aiming at poverty alleviation, increasing health literacy and awareness among all sections of society, and promoting mental health are needed. Interventions should be planned to ensure their availability across women's lives and should also be focused around vulnerable timeframes to enhance the mental well-being of WRA.

7.2 Recommendations

The following recommendations were formulated for cross-sectoral actions, community-level actions and the health systems actions needed for enhancing the mental well-being of WRA considering the evidence through findings. Additional suggestions for future research on CMDs and WRAs are also shared below.

Cross-Sector Actions

- Policymakers should align with other ministries such as the “Ministry of Rural Development” and “Ministry of Education” across national, state and district levels to introduce awareness about PMS and PMDD in schools and universities by introducing the training curriculum for teachers on CMDs prevention.
- Policymakers should collaborate on enhancing cash transfer programs and creating more work opportunities at the community level, thereby empowering women. This cross-collaborative approach can be led and monitored at the national level by the “Ministry of Finance”, “Ministry of Health and Family Welfare”, and “Ministry of Women and Child Development” and decentralised further to states and districts from an implementation standpoint.

Community-Level Actions

- NMHP and DMHP should adopt community-level training programs to create awareness and task-shifting (train lay health workers on CMDs). These programs should aim to build capacity in rural areas and use the existing IEC channels to promote mental well-being.
- Scaling up the existing successful interventions at the community level across India should involve men, WRA and “Person(s) with Lived Experience“.
- State health ministries should implement continuous awareness programs regarding anti-stigma using mediums such as dramas, plays, tele mental health programs, SMS and radio communication.
- Services must be expanded to include screening and referral at district-level antenatal clinics for CMDs in the initial phases. This expansion program can be included under DMHP to grow across all the districts. In addition, it can leverage the Accredited Social Health Activists (ASHAs) for this implementation in areas with a capacity shortage.

Health System Actions

- Policymakers should increase the mental health budget at national and state levels with a particular budget allocation to women-centred programs at the primary centre level addressing mental illnesses and prevention strategies. The national level budget needs to be distributed across all the mental health institutions beyond the few current institutions primarily receiving them to increase mental health services, human resource capacity, and skill enhancement of mental health workers, thereby reducing the existing treatment gap.

- NMHP and DMHP should include the continuous monitoring and evaluation of all interventions implemented to improve and enhance the output and impacts of these programs.
- Policymakers should consider expanding “Ayushman Bharat Yojana (PM-JAY)” to include private hospitals and facilities to cover mental health treatment costs and reduce out-of-pocket treatment costs. This Yojana should be further enhanced by having components such as counselling and rehabilitation services required for PWMI to overcome CMDs.

Research Action

- Further research should be conducted in India by taking a longitudinal and regional-specific approach considering the role of stigma, gender discrimination, violence against women, health system issues, and the effect of these factors on the risk of increase of CMDs in WRA. Understanding the causal relationship and how these factors influence this public health problem is essential. This new evidence would help formulate the necessary prevention interventions in future.

8 References

1. ICD-11 for Mortality and Morbidity Statistics [Internet]. International Classification of Diseases, Eleventh Revision (ICD-11), World Health Organization (WHO) 2019/2021. 2022 [cited 2 August 2022]. Available from: https://icd.who.int/browse11/l-m/en
2. Depression and Other Common Mental Disorders Global Health Estimates [Internet]. World Health Organization. 2017 [cited 8 July 2022]. Available from: https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf
3. Indicator Metadata Registry List [Internet]. World Health Organization. 2022 [cited 10 July 2022]. Available from: https://www.who.int/data/gho/indicator-metadata-registry
4. World mental health report: Transforming mental health for all [Internet]. World Health Organization. 2022 [cited 20 July 2022]. Available from: https://www.who.int/publications-detail-redirect/9789240049338
5. Global Burden of Disease (GBD) Results [Internet]. Institute for Health Metrics and Evaluation. 2019 [cited 3 July 2022]. Available from: https://vizhub.healthdata.org/gbd-results/
6. Mental health [Internet]. World Health Organization. 2022 [cited 3 July 2022]. Available from: https://www.who.int/health-topics/mental-health#tab=tab_1
7. The WHO special initiative for mental health (2019-2023): universal health coverage for mental health [Internet]. World Health Organization. 2019 [cited 20 July 2022]. Available from: https://apps.who.int/iris/handle/10665/310981
8. Mental Health ATLAS 2017 [Internet]. World Health Organization. 2018 [cited 8 July 2022]. Available from: https://www.who.int/publications/i/item/9789241514019
9. Alloh F, Regmi P, Onche I, Teijlingen E, Trenoweth S. Mental Health in low and middle income countries (LMICs): Going beyond the need for funding. Health Prospect. 2018;17(1):12-17.
10. Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet Psychiatry. 2022;9(2):137-150.
11. COVID-19 pandemic triggers a 25% increase in the prevalence of anxiety and depression worldwide [Internet]. World Health Organisation. 2022 [cited 3 July 2022]. Available from: https://www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide
12. Balakrishnan V, Ng K, Kaur W, Lee Z. COVID-19 mental health prevalence and its risk factors in South East Asia. Current Psychology. 2022;.
13. Santomauro D, Mantilla Herrera A, Shadid J, Zheng P, Ashbaugh C, Pigott D et al. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. The Lancet. 2021;398(10312):1700-1712.
14. India in numbers: demographics, economy, energy, climate and more data and comparisons with other countries [Internet]. 2022 [cited 19 June 2022]. Available from: https://www.worlddata.info/asia/india/index.php
15. Map of India, South Asia [Internet]. Nations Online Project. 2022 [cited 19 June 2022]. Available from: https://www.nationsonline.org/oneworld/map/India-Administrative-map.htm
16. Profile| National Portal of India [Internet]. India.gov.in. 2022 [cited 9 June 2022]. Available from: https://www.india.gov.in/india-glance/profile
17. India - age distribution 2020 | Statista [Internet]. Statista. 2022 [cited 19 June 2022]. Available from: https://www.statista.com/statistics/271315/age-distribution-in-india/
18. Gender ratio in India 2020 [Internet]. Statistics Times. 2021 [cited 3 July 2022]. Available from: https://statisticstimes.com/demographics/india-statistics.php
19. Page V, Kelly R, Rathburn P. How India Makes Money [Internet]. Investopedia. 2022 [cited 19 June 2022]. Available from: https://www.investopedia.com/articles/investing/043015/fundamentals-how-india-makes-its-money.asp

20. Poverty & Equity Brief- India [Internet]. Databank.worldbank.org. 2020 [cited 9 June 2022]. Available from: https://databank.worldbank.org/data/download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Global_POVEQ_IND.pdf
21. Poverty Rate in India Statistics 2021-2022 | Poorest State in India [Internet]. The Global Statistics. 2022 [cited 9 June 2022]. Available from: https://www.theglobalstatistics.com/poverty-in-india-statistics-2021
22. Morampudi S, Balasubramanian G, Gowda A, Zomorodi B, Patil A. The Challenges and Recommendations for Gestational Diabetes Mellitus Care in India: A Review. Frontiers in Endocrinology. 2017;8.
23. Global Health Expenditure Database- India [Internet]. World Health Organization. 2022 [cited 20 June 2022]. Available from: https://apps.who.int/nha/database/country_profile/Index/en
24. Report on evolution of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana [Internet]. World Health Organization. 2022 [cited 8 July 2022]. Available from: https://apps.who.int/iris/bitstream/handle/10665/354267/9789290229438-eng.pdf?sequence=1&isAllowed=y
25. Bhatia M, Singh D. Health Sector Allocation in India's Budget (2021–2022): A Trick or Treat?. The International Journal of Community and Social Development. 2021;:251660262110173.
26. Kafczyk T, Hämel K. The architecture of the primary mental healthcare system for older people in India: what public policies tell us. International Journal of Mental Health Systems. 2021;15(1).
27. Ghosh M. Mental health insurance scenario in India: Where does India stand? Indian Journal of Psychiatry. 2021;63(6):603.
28. Lan L, Jain S, Patel K, D. Crist K, Christina P.C. Borba C. Perspectives on Global Women's Mental Health [Internet]. Psychiatric Times. 2022 [cited 9 June 2022]. Available from: https://www.psychiatrictimes.com/view/perspectives-on-global-womens-mental-health
29. The Women's Mental Health Taskforce [Internet]. Agenda. 2018 [cited 9 June 2022]. Available from: https://weareagenda.org/wp-content/uploads/2018/12/The_Womens_Mental_Health_Taskforce_-_final_report1.pdf
30. Violence Against Women Prevalence Estimates, 2018 [Internet]. World Health Organization. 2021 [cited 2 August 2022]. Available from: https://www.who.int/publications/i/item/9789240022256
31. Wainberg M, Scorza P, Shultz J, Helpman L, Mootz J, Johnson K et al. Challenges and Opportunities in Global Mental Health: a Research-to-Practice Perspective. Current Psychiatry Reports. 2017;19(5).
32. Sagar R, Dandona R, Gururaj G, Dhaliwal R, Singh A, Ferrari A et al. The burden of mental disorders across the states of India: the Global Burden of Disease Study 1990–2017. The Lancet Psychiatry. 2020;7(2):148-161.
33. Suicides In India [Internet]. National Crime Records Bureau- India. 2020 [cited 9 July 2022]. Available from: https://ncrb.gov.in/sites/default/files/adsi2020_Chapter-2-Suicides.pdf
34. Puri P, Kothavale A, Singh S, Pati S. Burden and determinants of multimorbidity among women in reproductive age group: a cross-sectional study based in India. Welcome Open Research. 2021;5:275.
35. Bhattacharya A, Camacho D, Kimberly L, Lukens E. Women's Experiences and Perceptions of Depression in India: A Meta ethnography. Qualitative Health Research. 2018;29(1):80-95.
36. Ware N, DelVecchio Good M. Women And Mental Health [Internet]. United Nations. 1997 [cited 22 June 2022]. Available from: https://www.un.org/womenwatch/daw/csw/mental.htm
37. Gupta S, Sagar R. National Mental Health Programme-Optimism and Caution: A Narrative Review. Indian Journal of Psychological Medicine. 2018;40(6):509-516.
38. Duffy R, Kelly B. History of Mental Health Legislation in India. India's Mental Healthcare Act, 2017. 2020;:51-59.
39. National Mental Health Policy of India [Internet]. Ministry of Health and Family Welfare. Government of India. 2014 [cited 9 June 2022]. Available from: https://nhm.gov.in/images/pdf/National_Health_Mental_Policy.pdf

40. Ghanashyam B, Nagarathinam S. India is failing the mentally ill as abuses continue. The Lancet. 2010;376(9753):1633-1634.
41. Kaur K. Implications of the Mental Healthcare Act, 2017 on the Rights of Women with Mental Illnesses in India [Internet]. Virtual Commons - Bridgewater State University. 2018 [cited 9 July 2022]. Available from: https://vc.bridgew.edu/jiws/vol19/iss4/2/
42. Singh O. Closing treatment gap of mental disorders in India: Opportunity in new competency-based Medical Council of India curriculum. Indian Journal of Psychiatry. 2018;60(4):375.
43. Budget for Mental Health Analysis of Union Budget 2021–2022 [Internet]. Cmhlp.org. 2022 [cited 9 June 2022]. Available from: https://cmhlp.org/wp-content/uploads/2021/08/Budget-Brief-Union-Budget-for-Mental-Health-2021-22.pdf
44. Zhang J, Chen X, Gao X, Yang H, Zhen Z, Li Q et al. Worldwide research productivity in the field of psychiatry. International Journal of Mental Health Systems. 2017;11(1).
45. Mental Health ATLAS 2020 [Internet]. World Health Organization. 2021 [cited 2 July 2022]. Available from: https://www.who.int/publications/i/item/9789240036703
46. Lund C, Brooke-Sumner C, Baingana F, Baron E, Breuer E, Chandra P et al. Social determinants of mental disorders and the Sustainable Development Goals: a systematic review of reviews. The Lancet Psychiatry. 2018;5(4):357-369.
47. Mental Health and Well-being Ecological Model | Leadership Education in Maternal & Child Public Health [Internet]. University of Minnesota School of Public Health. 2015 [cited 22 June 2022]. Available from: https://mch.umn.edu/resources/mhecomodel/
48. U.S. Dept. of Health and Human Services, Office on Women's Health. Action steps for improving women's mental health [Internet]. Fairfax, VA.: Health Resources and Services Administration. Office of Women's Health; 2009 p. 64. Available from: http://adaiclearinghouse.net/downloads/Action-Steps-for-Improving-Womens-Mental-Health-23.pdf
49. Barth C, Villringer A, Sacher J. Sex hormones affect neurotransmitters and shape the adult female brain during hormonal transition periods. Frontiers in Neuroscience. 2015;9
50. Hall E, Steiner M. Serotonin and Female Psychopathology. Women's Health. 2013;9(1):85-97
51. Balhara Y, Verma R, Gupta C. Gender differences in stress response: Role of developmental and biological determinants. Industrial Psychiatry Journal. 2012;20(1):4
52. Batabyal A, Bhattacharya A, Thaker M, Mukherjee S. A longitudinal study of perceived stress and cortisol responses in an undergraduate student population from India. PLOS ONE. 2021;16(6):e0252579.
53. Babu G, Shriyan P, Sudhir P, Schayck O. Association of high cortisol levels in pregnancy and poor postpartum mental health and altered fetal growth. Analysis in the MAASTHI cohort study, Bengaluru. 2022;.
54. Bathla M, Singh M, Relan P. Prevalence of anxiety and depressive symptoms among patients with hypothyroidism. Indian Journal of Endocrinology and Metabolism. 2016;20(4):468.
55. Shoib S, Ahmad J, Wani M, Ullah I, Tarfarosh S, Masoodi S et al. Depression and anxiety among hyperthyroid female patients and impact of treatment. Middle East Current Psychiatry. 2021;28(1)
56. Koner S, Chaudhuri A. A study of correlation of perceived stress and thyroid function among females in a rural population of reproductive age group. Medical Journal of Dr DY Patil Vidyapeeth. 2020;13(1):30.
57. Mohammad M, Bushulaybi N, AlHumam A, AlGhamdi A, Aldakhil H, Alumair N et al. Prevalence of depression among hypothyroid patients attending the primary healthcare and endocrine clinics of King Fahad Hospital of the University (KFHU). Journal of Family Medicine and Primary Care. 2019;8(8):2708.
58. Thapar A, Collishaw S, Pine D, Thapar A. Depression in adolescence. The Lancet. 2012;379(9820):1056-1067
59. Das SC, Mallicka, Sahoo P, Priyadarshini P, Manasa RV. Prevalence of severe depression among adolescents in Odisha, India rural area. Indian J Community Med 2021;46:438-41

60. Mithra P, Jayashree K, C. Nair M, Unnikrishnan B, Pai K. Depression and anxiety disorders among school going adolescents in an urban area of South India. Indian Journal of Community Medicine. 2018;43(5):28.
61. Taneja N, Gupta S, Kapoor S, Kumar A. Comparison of mental health status of married and unmarried girls of late adolescent age in an urban slum of Delhi. Indian Journal of Community Medicine. 2020;45(2):145.
62. Dutta A, Sharma A. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in India: A systematic review and meta-analysis. Health Promotion Perspectives. 2021;11(2):161-170
63. Gowshika R E, Rani N. Premenstrual syndrome (PMS) and Premenstrual dysphoric disorder (PMDD) among 10 to 30 year old unmarried Indian girls. Research Journal of Modernization in Engineering Technology and Science. 2021;Volume:03/(Issue:05/May-2021)
64. Wang Z, Liu J, Shuai H, Cai Z, Fu X, Liu Y et al. Mapping global prevalence of depression among postpartum women. Translational Psychiatry. 2021;11(1).
65. Upadhyay R, Chowdhury R, Aslyeh Salehi, Sarkar K, Singh S, Sinha B et al. Postpartum depression in India: a systematic review and meta-analysis. Bulletin of the World Health Organization. 2017;95(10):706-717C.
66. Kapoor D. A Critical Analysis of the Biopsychosocial Risks Associated with Postpartum Depression in Indian Mothers [Internet]. Inquiries Journal. 2021 [cited 25 June 2022]. Available from: http://www.inquiriesjournal.com/a?id=1880
67. Budh N, Basu S, Garg S, Singh M, Sharma A. Postpartum depression burden and associated factors in mothers of infants at an urban primary health center in Delhi, India. Tzu Chi Medical Journal. 2021;33(1):70.
68. Zaidi F. Postpartum Depression in Women: A Risk Factor Analysis. Journal Of Clinical And Diagnostic Research. 2017;.
69. Patel H, Ganjiwale J, Nimbalkar A, Vani S, Vasa R, Nimbalkar S. Characteristics of Postpartum Depression in Anand District, Gujarat, India. Journal of Tropical Pediatrics. 2015;61(5):364-369.
70. Sidhu T, Sidhu G, Kaur P, Lal D, Sangha N. Evaluation of peripartum depression in females. International Journal of Applied and Basic Medical Research. 2019;9(4):201.
71. Raghavan V, Khan H, Seshu U, Rai S, Durairaj J, G. A et al. Prevalence and risk factors of perinatal depression among women in rural Bihar: A community-based cross-sectional study. Asian Journal of Psychiatry. 2021;56:102552.
72. Bagade V, Mhatre B. Prevalence of Pregnancy-Related Anxiety in Pregnant Women in Southern Fringes of Pune, India. International Journal of Health Sciences and Research. 2021;11(10):41-45.
73. Nath A, Venkatesh S, Balan S, Metgud C, Krishna M, Murthy G. The prevalence and determinants of pregnancy-related anxiety amongst pregnant women at less than 24 weeks of pregnancy in Bangalore, Southern India. International Journal of Women's Health. 2019;Volume 11:241-248.
74. Aneja J, Chavan B, Huria A, Goel P, Kohli N, Chhabra P. Perceived stress and its psychological correlates in pregnant women: an Indian study. International Journal of Culture and Mental Health. 2017;11(3):268-279.
75. Priya A, Chaturvedi S, Bhasin S, Bhatia M, Radhakrishnan G. Depression, anxiety and stress among pregnant women: A community-based study. Indian Journal of Psychiatry. 2018;60(1):151.
76. Yadav V, Jain A, Dabar D, Goel A, Sood A, Joshi A et al. A meta-analysis on the prevalence of depression in perimenopausal and postmenopausal women in India. Asian Journal of Psychiatry. 2021;57:102581
77. Dar S, Wani Z, Bhat B, Sheikh S, Nabi J, Khanam A et al. Anxiety and depression in menopausal transition: A hospital-based study from Kashmir. Medical Journal of Dr DY Patil Vidyapeeth. 2020;13(1):37.
78. Chaudhury S, Jagtap B, Prasad B. Psychiatric morbidity in perimenopausal women. Industrial Psychiatry Journal. 2016;25(1):86.

79. Bansal P, Chaudhary A, Soni R, Sharma S, Gupta V, Kaushal P. Depression and anxiety among middle-aged women: A community-based study. Journal of Family Medicine and Primary Care. 2015;4(4):576.
80. World Health Organization and the Calouste Gulbenkian Foundation's Global Mental Health Platform. Social determinants of mental health [Internet]. Apps.who.int. 2014 [cited 2 August 2022]. Available from: https://apps.who.int/iris/bitstream/handle/10665/112828/9789241506809_eng.pdf
81. Shidhaye R, Patel V. Association of socio-economic, gender and health factors with common mental disorders in women: a population-based study of 5703 married rural women in India. International Journal of Epidemiology. 2010;39(6):1510-1521.
82. Kallakuri S, Devarapalli S, Tripathi A, Patel A, Maulik P. Common mental disorders and risk factors in rural India: baseline data from the SMART mental health project. BJPsych Open. 2018;4(4):192-198.
83. Subbaraman R, Nolan L, Shitole T, Sawant K, Shitole S, Sood K et al. The psychological toll of slum living in Mumbai, India: A mixed-methods study. Social Science & Medicine. 2014;119:155-169.
84. Ram D, Mathew A. Psychosocial burdens of women in India: A narrative review. J Sci Soc 2021;48:138-44
85. Mondal A, Kumar M. Effect of COVID-19 Lockdown on Women Mental Health. The International Journal of Indian Psychology. 2021;09(02).
86. Bau N, Khanna G, Low C, Shah M, Sharmin S, Voena A. Women's well-being during a pandemic and its containment. Journal of Development Economics. 2022;156:102839.
87. Patel S, Bahadur S. Psychological Distress Among Women During the Covid- 19 Pandemic in India: A Systematic Review. 2021;8. 289-300.
88. Climate Change And Mental Health [Internet]. National Centre for Disease Control. 2021 [cited 9 July 2022]. Available from: https://ncdc.gov.in/WriteReadData/linkimages/ClimateChangeMentalHealth.pdf
89. Channaveerachari N, Raj A, Joshi S, Paramita P, Somanathan R, Chandran D et al. Psychiatric and Medical Disorders in the after Math of the Uttarakhand Disaster: Assessment, Approach, and Future Challenges. Indian Journal of Psychological Medicine. 2015;37(2):138-143.
90. Cianconi P, Betrò S, Janiri L. The Impact of Climate Change on Mental Health: A Systematic Descriptive Review. Frontiers in Psychiatry. 2020;11.
91. Chandra P, Satyanarayana V. Gender disadvantage and common mental disorders in women. International Review of Psychiatry. 2010;22(5):513-524.
92. Viswanath B, Maroky A, Math S, John J, Cherian A, Girimaji S et al. Gender differences in the psychological impact of tsunami. International Journal of Social Psychiatry. 2011;59(2):130-136.
93. Arora M, Khurana P, Choiden S. Performance management. 1st ed. Boca Raton: CRC Press; 2021.
94. Karim F, Oyewande A, Abdalla L, Chaudhry Ehsanullah R, Khan S. Social Media Use and Its Connection to Mental Health: A Systematic Review. Cureus. 2020;.
95. Sharma M, Amandeep, Mathur D, Jeenger J. Nomophobia and its relationship with depression, anxiety, and quality of life in adolescents. Industrial Psychiatry Journal. 2019;28(2):231.
96. Mukhopadhyay D, Barman L, Bandyopadhyay G. Use of social networking site and mental disorders among medical students in Kolkata, West Bengal. Indian Journal of Psychiatry. 2018;60(3):340.
97. V. R, I. A, V. S. Social media as a means to overcome stress and depression among women. Journal of Media and Communication Studies. 2018;10(6):46-64.
98. Gupta S, Kishore J, Mala Y, Ramji S, Aggarwal R. Postpartum Depression in North Indian Women: Prevalence and Risk Factors. The Journal of Obstetrics and Gynecology of India. 2013;63(4):223-229.
99. Mahale N, Prabhu M, Pai K, Mahale A, Nayak A. A study of postpartum depression and its risk factors in a Tertiary Hospital in India. Italian Journal of Gynaecology and Obstetrics. 2021;33(02):120.

100. Evans J, Sahgal N, Monique Salazar A, Jo Starr K, Corichi M. How Indians View Gender Roles in Families and Society [Internet]. Pew Research Center's Religion & Public Life Project. 2022 [cited 28 June 2022]. Available from: https://www.pewresearch.org/religion/2022/03/02/how-indians-view-gender-roles-in-families-and-society/
101. Ram U, Strohschein L, Gaur K. Gender Socialization: Differences between Male and Female Youth in India and Associations with Mental Health. International Journal of Population Research. 2014;2014:1-11.
102. Hathi P, Coffey D, Thorat A, Khalid N. When women eat last: Discrimination at home and women's mental health. PLOS ONE. 2020;16(3):e0247065.
103. Javed A, Lee C, Zakaria H, Buenaventura R, Cetkovich-Bakmas M, Duailibi K et al. Reducing the stigma of mental health disorders with a focus on low- and middle-income countries. Asian Journal of Psychiatry. 2021;58:102601.
104. Boge K, Zieger A, Mungee A, Tandon A, Fuchs L, Schomerus G et al. Perceived stigmatization and discrimination of people with mental illness: A survey-based study of the general population in five metropolitan cities in India. Indian Journal of Psychiatry. 2018;60(1):24.
105. Kulesza M, Raguram R, Rao D. Perceived mental health related stigma, gender, and depressive symptom severity in a psychiatric facility in South India. Asian Journal of Psychiatry. 2014;9:73-77.
106. Venkatesh B, Andrews T, Mayya S, Singh M, Parsekar S. Perception of stigma toward mental illness in South India. Journal of Family Medicine and Primary Care. 2015;4(3):449.
107. Trani J, Bakhshi P, Kuhlberg J, Narayanan S, Venkataraman H, Mishra N et al. Mental illness, poverty and stigma in India: a case-control study. 2015.
108. Mathur Gaiha S, Ann Sunil G, Kumar R, Menon S. Enhancing mental health literacy in India to reduce stigma: the fountainhead to improve help-seeking behaviour. Journal of Public Mental Health. 2014;13(3):146-158.
109. Kumar P, Tiwari D, Kanabar B, Patel V, Chanpa N, Vasavada D. Knowledge, stigma, and attitude toward mental illness among rural school students. Annals of Indian Psychiatry. 2020;4(2):202.
110. Gaiha S, Taylor Salisbury T, Koschorke M, Raman U, Petticrew M. Stigma associated with mental health problems among young people in India: a systematic review of magnitude, manifestations and recommendations. BMC Psychiatry. 2020;20(1).
111. Safwi S, Amir A, Khalique N, Gaur R. A cross-sectional study on depression from rural India. International Journal of Community Medicine and Public Health. 2016;:1769-1776.
112. Kishore J, Gupta A, Jiloha R, Bantman P. Myths, beliefs and perceptions about mental disorders and health-seeking behavior in Delhi, India. Indian Journal of Psychiatry. 2011;53(4):324.
113. Dayal J, Kaur M. Impact of Superstitious Attitude on Mental Health of Women Teachers [Internet]. Worldwidejournals.com. 2015 [cited 3 July 2022]. Available from: https://www.worldwidejournals.com/paripex/recent_issues_pdf/2015/July/July_2015_1435994309__28.pdf
114. Kaur S, Thapar K, Saini P, Kaur H, Kaur J. Myths & Misconceptions of Mental Illness and Health Seeking Behaviour of Adults. Int J Com Health and Med Res 2016;2(3):3-9
115. Subudhi C, Biswal R, Acharya S. Healers and healing practices of mental illness in India: The role of proposed eclectic healing model. Journal of Health Research and Reviews. 2017;4(3):89.
116. Devastatingly pervasive: 1 in 3 women globally experience violence [Internet]. World Health Organisation. 2022 [cited 15 July 2022]. Available from: https://www.who.int/news/item/09-03-2021-devastatingly-pervasive-1-in-3-women-globally-experience-violence
117. Davies P, Dreyer Y. A pastoral psychological approach to domestic violence in South Africa. HTS Teologiese Studies / Theological Studies. 2014;70(3).
118. Howard L, Wilson C, Chandra P. Intimate partner violence and mental health: lessons from the COVID -19 pandemic. World Psychiatry. 2022;21(2):311-313.

119. Oram S, Khalifeh H, Howard L. Violence against women and mental health. The Lancet Psychiatry. 2017;4(2):159-170.
120. Trevillion K, Oram S, Feder G, Howard L. Experiences of Domestic Violence and Mental Disorders: A Systematic Review and Meta-Analysis. PLoS ONE. 2012;7(12):e51740.
121. The Protection Of Women From Domestic Violence Act, 2005 [Internet]. 2005 [cited 15 July 2022]. Available from: https://wcd.nic.in/sites/default/files/wdvact.pdf
122. National Family Health Survey (NFHS-5), 2019–21 [Internet]. International Institute for Population Sciences (IIPS) and ICF. 2021. 2022 [cited 15 July 2022]. Available from: https://dhsprogram.com/pubs/pdf/FR375/FR375.pdf
123. Lathabhavan R, Joy G, Sudevan S. Mental Health Concerns of Dowry Harassment Survivors in India: A Multi-Level Mixed Method Study. Journal of Loss and Trauma. 2022;:1-3.
124. Calvi R, Keskar A. 'Til Dowry Do Us Part: Bargaining and Violence in Indian Families. Institutions & Political Economy [Internet]. 2021 [cited 2 August 2022];:1-40. Available from: https://economics.sas.upenn.edu/system/files/2021-03/TilDowry.pdf
125. Jha R, Dhamnetiya D, Bhattacharyya K, Patel P, Shri N, Singh M. The burden of depression among Indian adolescents: A study on cross-sectional data. 2022;.
126. Shah A, John S, Chawla K, Kvankar G, Jaiswal A. Assessment of Association between Domestic Violence and Antenatal Depression in Rural Indian Population. Journal Of Clinical And Diagnostic Research. 2021;.
127. Pandey V, Singh S. Reproductive Health Vulnerabilities and Gender Role Attributes among Tribe's: A study for Public Health system strengthening in, India. Elixir International Journal. 2018;(118):50666-50674.
128. Sharma K, Vatsa M, Kalaivani M, Bhardwaj D. Mental health effects of domestic violence against women in Delhi: A community-based study. Journal of Family Medicine and Primary Care. 2019;8(7):2522.
129. Kanougiya S, Daruwalla N, Gram L, Sivakami M, Osrin D. Domestic Coercive Control and Common Mental Disorders Among Women in Informal Settlements in Mumbai, India: A Cross-Sectional Survey. Journal of Interpersonal Violence. 2021;:088626052110302.
130. Rai R, Rai A. Sexual violence and poor mental health of women: An exploratory study of Uttar Pradesh, India. Clinical Epidemiology and Global Health. 2019;8(1):194-198.
131. Agarwal N, Abdalla S, Cohen G. Marital rape and its impact on the mental health of women in India: A systematic review. PLOS Global Public Health. 2022;2(6):e0000601.
132. Patel R, Gupte S, Srivastava S, Kumar P, Chauhan S, Govindu M et al. Experience of gender-based violence and its effect on depressive symptoms among Indian adolescent girls: Evidence from UDAYA survey. PLOS ONE. 2021;16(3):e0248396.
133. Gnanaselvam N, Joseph B. Depression and Behavioral Problems Among Adolescent Girls and Young Women Employees of the Textile Industry in India. Workplace Health & Safety. 2017;66(1):24-33.
134. Jangam K, Muralidharan K, Tansa K, Aravind Raj E, Bhowmick P. Incidence of childhood abuse among women with psychiatric disorders compared with healthy women: Data from a tertiary care centre in India. Child Abuse & Neglect. 2015;50:67-75.
135. Travasso S, Rajaraman D, Heymann S. A qualitative study of factors affecting mental health amongst low-income working mothers in Bangalore, India. BMC Women's Health. 2014;14(1).
136. Mahomed F, Stein M, Chauhan A, Pathare S. 'They love me, but they don't understand me': Family support and stigmatisation of mental health service users in Gujarat, India. International Journal of Social Psychiatry. 2018;65(1):73-79.
137. Coping Mechanisms Used by Women with Major Depression. Indian Journal of Public Health Research & Development. 2020;.
138. Kaur A, Solanki H, Das M, Awasthi S, Jain S. Coping mechanism used by homemakers in Kumaon region (Uttarakhand, India) to deal with stress in their day-to-day life. Journal of Family Medicine and Primary Care. 2019;8(3):1138.
139. Qi W, Liu Y, Lv H, Ge J, Meng Y, Zhao N et al. Effects of family relationship and social support on the mental health of Chinese postpartum women. BMC Pregnancy and Childbirth. 2022;22(1).

140. Hu Y, Wang Y, Wen S, Guo X, Xu L, Chen B et al. Association between social and family support and antenatal depression: a hospital-based study in Chengdu, China. BMC Pregnancy and Childbirth. 2019;19(1).
141. Li M, Mardhekar V, Wadkar A. Coping Strategies and Learned Helplessness of Employed and Nonemployed Educated Married Women From India. Health Care for Women International. 2012;33(5):495-508.
142. Gururaj G, Varghese M, Benegal V, Rao G, Pathak K, Singh L et al. National Mental Health Survey of India, 2015-16: Mental Health Systems [Internet]. Bengaluru: National Institute of Mental Health and Neuro Sciences; 2016. Available from: http://indianmhs.nimhans.ac.in/Docs/Report1.pdf
143. Mental Health ATLAS 2017 Member State Profile [Internet]. World Health Organization. 2018 [cited 17 July 2022]. Available from: https://www.ecoi.net/en/file/local/2002777/IND.pdf
144. Ransing R, Agrawal G, Bagul K, Pevekar K. Inequity in Distribution of Psychiatry Trainee Seats and Institutes Across Indian States: A Critical Analysis. Journal of Neurosciences in Rural Practice. 2020;11(02):299-308.
145. Ransing R, Kukreti P, Deshpande S, Godake S, Neelam N, Raghuveer P et al. Perinatal depression–knowledge gap among service providers and service utilizers in India. Asian Journal of Psychiatry. 2020;47:101822.
146. Almanzar S, Shah N, Vithalani S, Shah S, Squires J, Appasani R et al. Knowledge of and Attitudes Toward Clinical Depression Among Health Providers in Gujarat, India. Annals of Global Health. 2014;80(2):89.
147. Srinivasan K, Salazar L, Ekstrand M, Selvam S, Heylen E, Pradeep R. The effect of mental health training on the knowledge of common mental disorders among medical officers in primary health centres in rural Karnataka. Journal of Family Medicine and Primary Care. 2022;11(3):994.
148. Ogorchukwu J, Sekaran V, Nair S, Ashok L. Mental Health Literacy Among Late Adolescents in South India: What They Know and What Attitudes Drive Them. Indian Journal of Psychological Medicine. 2016.
149. Saraf G, Chandra P, Desai G, Rao G. What Adolescent Girls Know about Mental Health: Findings from a Mental Health Literacy Survey from an Urban Slum Setting in India. Indian Journal of Psychological Medicine. 2018;40(5):433-439.
150. Dang H, Lam T, Dao A, Weiss B. Mental health literacy at the public health level in low and middle income countries: An exploratory mixed methods study in Vietnam. PLOS ONE. 2020;15(12):e0244573.
151. Ahmed T, Dumka N, Hannah E, Chauhan V, Kotwal A. Understanding India's response to mental health care: a systematic review of the literature and overview of the National Mental Health Programme. Journal of Global Health Neurology and Psychiatry. 2022;.
152. Chisholm D, Sweeny K, Sheehan P, Rasmussen B, Smit F, Cuijpers P et al. Scaling-up treatment of depression and anxiety: a global return on investment analysis. The Lancet Psychiatry. 2016;3(5):415-424.
153. Hans G, Sharan P. Community-Based Mental Health Services in India: Current Status and Roadmap for the Future. Consortium Psychiatricum. 2021;2(3):63-71.
154. Ranjan Avinash P, Gondwal R. Ayushmaan Bharat: Boon for Medical Disorders and Bane for Mental Illness in India. Acta Scientific Neurology. 2020;4(1):29-31.
155. Kumar C, Bijal A, Manjunatha N, Gowda M, Basavaraju V, Math S. Health insurance and mental illness. Indian Journal of Psychiatry. 2019;61(10):791.
156. Ranjan A, Crasta J. Healthcare utilization and financial protection among those with mental disorders in India: Insights from the 75th round of the National Sample Survey. 2022;.
157. Powell-Jackson T, Pereira S, Dutt V, Tougher S, Haldar K, Kumar P. Cash transfers, maternal depression and emotional well-being: Quasi-experimental evidence from India's Janani Suraksha Yojana programme. Social Science & Medicine. 2016;162:210-218.
158. Ganjekar S, Thekkethayyil AV, Chandra PS. Perinatal mental health around the world: priorities for research and service development in India. BJPsych International. Cambridge University Press; 2020;17(1):2–5.

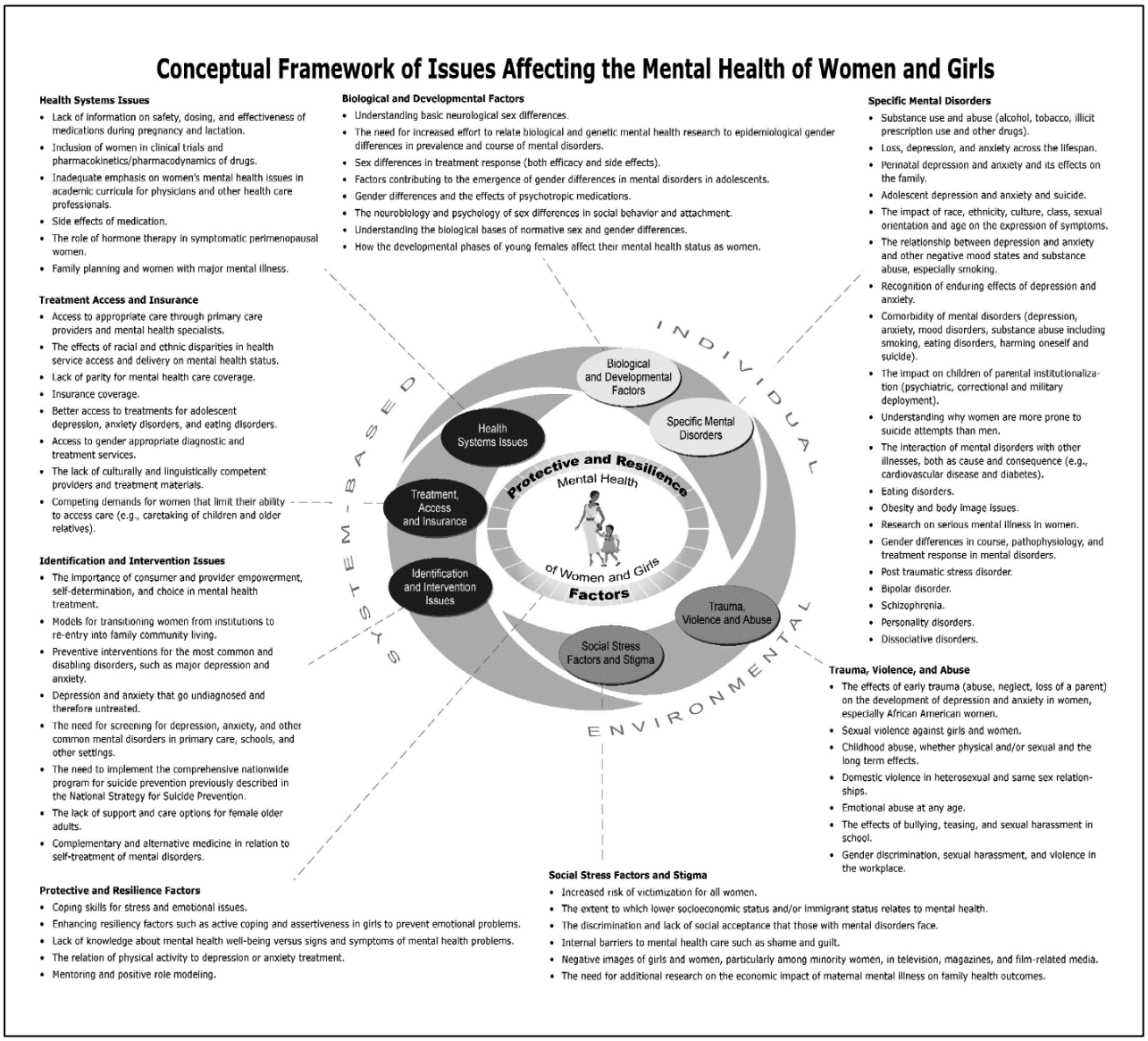
159. Maulik P, Devarapalli S, Kallakuri S, Bhattacharya A, Peiris D, Patel A. The Systematic Medical Appraisal Referral and Treatment Mental Health Project: Quasi-Experimental Study to Evaluate a Technology-Enabled Mental Health Services Delivery Model Implemented in Rural India. Journal of Medical Internet Research. 2020;22(2):e15553.
160. Jain N, Bahl D, Mehta R, Bassi S, Sharma K, Arora M. Progress and challenges in implementing adolescent and school health programmes in India: a rapid review. BMJ Open. 2022;12(5):e047435.
161. Project Stree Manoraksha [Internet]. NIMHANS Stree Manoraksha. 2022 [cited 23 July 2022]. Available from: https://nimhansstreemanoraksha.in/project-stree-manoraksha/
162. Sagar R, Singh S. National Tele-Mental Health Program in India: A step towards mental health care for all?. Indian Journal of Psychiatry. 2022;64(2):117.
163. Patel V, Weiss H, Chowdhary N, Naik S, Pednekar S, Chatterjee S et al. Effectiveness of an intervention led by lay health counsellors for depressive and anxiety disorders in primary care in Goa, India (MANAS): a cluster randomised controlled trial. The Lancet. 2010;376(9758):2086-2095.
164. Chandra P, Sowmya H, Mehrotra S, Duggal M. 'SMS' for mental health – Feasibility and acceptability of using text messages for mental health promotion among young women from urban low-income settings in India. Asian Journal of Psychiatry. 2014;11:59-64.
165. Saha S, Chauhan A, Hamlai M, Saiyad V, Makwana S, Shah K et al. Unique collaboration of modern medicine and traditional faith-healing for the treatment of mental illness: Best practice from Gujarat. Journal of Family Medicine and Primary Care. 2021;10(1):521.
166. Mathias K, Pandey A, Armstrong G, Diksha P, Kermode M. Outcomes of a brief mental health and resilience pilot intervention for young women in an urban slum in Dehradun, North India: a quasi-experimental study. International Journal of Mental Health Systems. 2018;12(1).
167. Malathesh B, Bairy B, Kumar C, Nirisha P, Gajera G, Pandey P et al. Impact Evaluation of Technology Driven Mental Health Capacity Building in Bihar, India. Psychiatric Quarterly. 2021;92(4):1855-1866.
168. Nirisha P, Malathesh B, Kulal N, Harshithaa N, Ibrahim F, Suhas S et al. Impact of Technology Driven Mental Health Task-shifting for Accredited Social Health Activists (ASHAs): Results from a Randomised Controlled Trial of Two Methods of Training. Community Mental Health Journal. 2022;.
169. Atif N, Krishna R, Sikander S, Lazarus A, Nisar A, Ahmad I et al. Mother-to-mother therapy in India and Pakistan: adaptation and feasibility evaluation of the peer-delivered Thinking Healthy Programme. BMC Psychiatry. 2017;17(1).
170. Freudberg H, Contractor S, Das A, Kemp C, Nevin P, Phadiyal A et al. Process and impact evaluation of a community gender equality intervention with young men in Rajasthan, India. Culture, Health & Sexuality. 2018;20(11):1214-1229.
171. Barbosa E, Verhoef T, Morris S, Solmi F, Johnson M, Sohal A et al. Cost-effectiveness of a domestic violence and abuse training and support programme in primary care in the real world: updated modelling based on an MRC phase IV observational pragmatic implementation study. BMJ Open. 2018;8(8):e021256.
172. Vojtila L, Ashfaq I, Ampofo A, Dawson D, Selby P. Engaging a person with lived experience of mental illness in a collaborative care model feasibility study. Research Involvement and Engagement. 2021;7(1).
173. Dehury R, Kumar R. The Role of AYUSH in Mental Well-Being. Advances in Psychology, Mental Health, and Behavioral Studies. 2020;:281-295.
174. Chandra S, Patwardhan K. Allopathic, AYUSH and informal medical practitioners in rural India – a prescription for change. Journal of Ayurveda and Integrative Medicine. 2018;9(2):143-150.
175. Anwar N, Ahmed N, Shahida T, Kabiruddin K, Aslam H. The Role of Mufarrehat (Exhilarants) in the Management of Depression: An Evidence Based Approach. Journal of Psychiatry. 2017;20(5).
176. Gaikwad U. Effect of Yoga therapy on Anxiety and Depression of Women's. Think India (Quarterly Journal). 2019;22(13):75-83.

177. Varambally S, Umadevi P, Ramachandra S, Philip M, Gangadhar B. Effect of yoga therapy on anxiety and depressive symptoms and quality-of-life among caregivers of in-patients with neurological disorders at a tertiary care center in India: A randomized controlled trial. Indian Journal of Psychiatry. 2013;55(7):385.
178. Bieber M, Görgülü E, Schmidt D, Zabel K, Etyemez S, Friedrichs B et al. Effects of body-oriented yoga: a RCT study for patients with major depressive disorder. European Archives of Psychiatry and Clinical Neuroscience. 2021;271(7):1217-1229.
179. Women Empowerment Schemes [Internet]. Ministry of women and child development - Government of India. 2022 [cited 29 July 2022]. Available from: https://wcd.nic.in/schemes-listing/2405
180. Birchall J. Gender sensitive strategic communications interventions. K4D Helpdesk Report. Brighton, UK: Institute of Development Studies. 2018.

9 Appendices

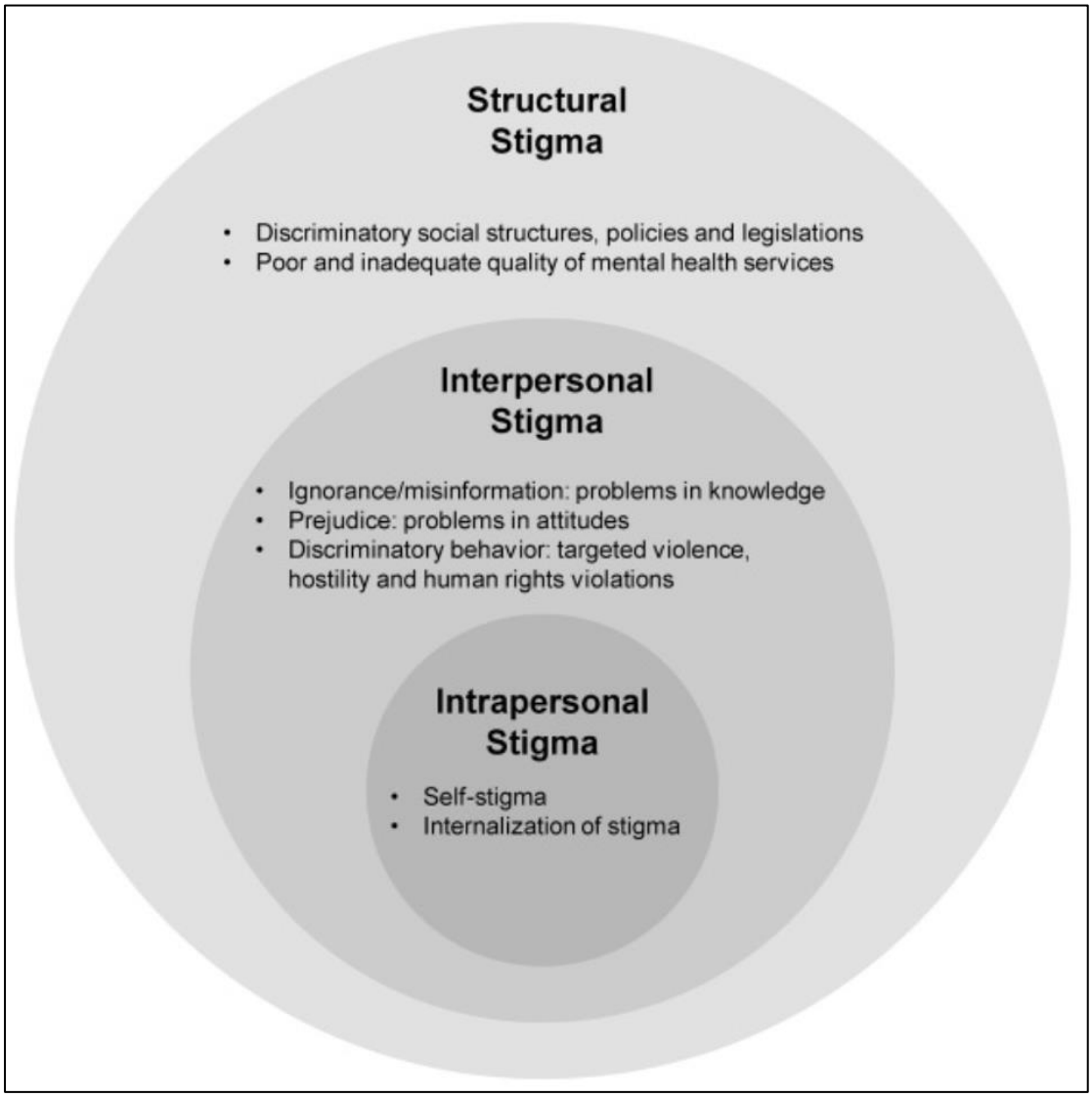
9.1 Appendix - A

Detailed components of the conceptual framework (46)



9.2 Appendix - B

Detailed layers of stigma (102)



9.3 Appendix - C

Different components of violence (116)